

Sweetocoris, a new genus of Stygnocorini from South Africa
with the description of fourteen new species (Hemiptera:
Lygaeidae)

by

FLAVIA A. O'ROURKE

Biological Sciences Group, University of Connecticut, Storrs,
Connecticut U.S.A.

A new stygnocorine genus, *Sweetocoris* from South Africa is erected to include 15 species, 14 of which are new. The phylogeny of *Sweetocoris* is discussed and a cladogram included. There is a discussion and table of wing polymorphism. The distribution of *Sweetocoris* and its zoogeographic significance is discussed in relation to other stygnocorine genera.

INTRODUCTION

The extensive field collecting of terrestrial Lygaeidae by Dr James Slater, Dr Merrill Sweet and colleagues in South Africa during 1967-1968 has revealed a considerable stygnocorine fauna to be present (Slater & Sweet, 1970). An important component of this stygnocorine fauna consists of a complex of largely undescribed species which previously had been considered as representing *Lasiosomus* Fieber. However, analysis of this fauna indicates that two distinct, although related genera are represented, the true *Lasiosomus* and a second previously undescribed genus. This undescribed genus contains a majority of South African species of the Stygnocorini and is the subject of this present paper.

The tribe Stygnocorini of the Rhyparochrominae has had a confusing history. Gulde (1936) erected the tribe to contain three Palearctic genera, *Lasiosomus* Fieber, *Stygnocoris* Douglas Scott, and *Acompus* Fieber. Scudder (1957) enormously expanded this concept to include all rhyparochromine genera with ventral spiracles and with the two posterior trichobothria of sternum 5 located one above the other and posterior to the spiracle. Slater & Sweet (1961) pointed out that by including *Clerada* Stal, Scudder had included a genus already the type genus of a tribe, the Cleradini of Stal (1874), and that therefore, the latter name must replace the Stygnocorini of Scudder's concept. Subsequently Slater (1964), Sweet (1967) and Slater & Sweet (1970) showed that Scudder's concept of the Stygnocorini brings together a markedly polyphyletic group of genera. Slater & Sweet (1970) should be consulted for a careful review of the situation.

The chief importance for the present paper of the Slater and Sweet concept of the Stygnocorini is that it brings together a group of relatively generalized rhyparochromines restricted to the Eastern Hemisphere with isolated yet related genera in southern Africa, Madagascar, south-eastern Australia, Tasmania and New Zealand. Presently six genera are Palearctic in distribution, five Ethiopian including Madagascar, one endemic in New Zealand and one in Tasmania. (There is additional undescribed material from Madagascar and Australia).

The major portion of the material was collected by Dr James A. Slater, Dr Merrill H. Sweet, Dr Toby Schuh and Mr Samuel Slater in 1967–1968 during field studies in South Africa. The last initial of each collector appears throughout the text as an abbreviation for the names of these collectors (S.S.S.S.). All measurements are in millimeters. The length of the head is measured along the median line from the base of the head to the tylus; the width of the head is across the eyes at the greatest width as seen from a dorsal view. The interocular space is the shortest distance between the eyes dorsally. The width of the pronotum is the distance from each lateral margin measured along the posterior margin; the pronotal length is the distance along a medial line from the anterior to posterior margin. The scutellar length is measured from a median line to the apex; the width is the distance across the base. The distance from the apex clavus-apex corium is measured on a median line from the claval apex to the corial apex at a 90° angle from the margin. The distance from the apex corium to the apex abdomen is measured from the midline at a 90° angle from the corial apex to the apex of the abdomen. The total body length is measured on a median line from the tylus to the apex of the abdomen.

Genitalia: the terminology employed in the text for genitalia is adapted from Ashlock (1957) and Slater and Harrington (1970).

ZOOGEOGRAPHY

As pointed out by Slater & Sweet (1970), the *Stygnocorini* have an unusual distribution with six genera predominantly Palearctic and most of the others found in the southern portions of the Eastern Hemisphere. However, only four genera (*Stygnocoris*, *Stygnocorisella* Douglas & Scott, *Esuridae* Reuter, and *Acompus*) are actually completely Palearctic elements. *Hyalochilus* Fieber, which is usually considered Palearctic, occurs in South West Africa and *Lasiosomus* is chiefly an Ethiopian genus.

Notiocola Slater & Sweet occurs in South Africa and Madagascar, *Margareta* White in New Zealand, *Tasmanicola* Slater & Sweet in Tasmania (I have seen material from continental south-east Australia), and *Capenicola* Slater & Sweet and *Paracenemodus* Slater are known only from the Cape area of South Africa. *Sweetocoris* has a primarily South African distribution, the species occurring chiefly in areas of macchia vegetation in the south-west Cape and scattered along the escarpment north to Rhodesia, [although *minutus* (Scudder) is widely distributed in the high veld along the tropical corridor of eastern South Africa] and two species occurring in Madagascar.

SWEETOCORIS gen. nov.

Type-species: *Sweetocoris parafenestratus* spec. nov.

Shining; dorsal coloration varying from muted reddish tones to a distinct black and white pattern; dorsal vestiture varying from elongate upstanding hairs to nearly glabrous; clavus with three rows of punctures; corium with two rows of punctures adjacent to claval suture, another sinuate row arising from just below base of humeral lobes laterad of radial vein, extending along vein to apical margin (except for *S. hirsutus* where the claval suture is fused and the corium evenly punctate); abdomen impunctate.

Head slightly declivent to porrect; eyes nearly in contact with anterior pronotal margin; pronotum sub-carinate to rounded laterally; abdominal sterna 2–5

fused; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area extending around auricle covering nearly inner half of metapleuron; labial length variable, from attaining posterior mesocoxal margin to somewhat exceeding posterior coxae; legs and antennae relatively elongate as compared to body length; body length less than 4.00.

Genitalia: sperm reservoir with a small, slender, tubular bulb; wings triangular with apex projected anteriorly and angles rounded; gonopore with 6–7 coils, diameter about 1.5 that of sperm reservoir (fig. 15).

Sweetocoris appears to be most closely related to the genus *Capenicola*. The two species, *S. bonspeiensis* and *fenestratus* which I consider to be the most primitive known species of *Sweetocoris* (see phylogeny), are similar to *Capenicola tafelbergensis* Slater & Sweet in puncture pattern, head and pronotal shape, generally polished surface and relatively long appendages but differ in corial length, wing membrane type, and scent gland structure. *S. bonspeiensis* and *fenestratus* like *C. tafelbergensis* are species that occur only in the extreme south west Cape.

Sweetocoris as previously discussed has a primarily South African distribution but two species occur in Madagascar. Several species occur only in the south-west Cape (*bonspeiensis*, *fenestratus*, *hirsutus*, *slateri*, *nigromaculatus*, *thunbergi*, *muticus*, *ceres*). *S. parafenestratus* occurs in the Cape region also but extends eastward along the escarpment. *Drakensbergensis*, *pseudoceres* and *dissimilis* occur along the escarpment in Natal and the eastern Transvaal. *S. minutus* is the most widely distributed species, extending from the Cape Province to Tanzania.

PHYLOGENETIC CONSIDERATIONS

The cladogram for *Sweetocoris* (fig. 1) is constructed following Hennig (1966) on the basis of synapomorphy. I consider the following characters ancestral (plesiomorphic) or derived (apomorphic) on the basis of an examination of other genera in the tribe and species within the genera, and a review of morphological literature on the Rhyparochrominae.

1. The complete abdominal suture between sterna 4–5, (i.e., one reaching the lateral connexival margin) is considered to be the ancestral condition and the incomplete abdominal suture between sterna 4–5 (curving cephalad and terminating in the trichobothrial furrow) is considered the derived condition. The Hemiptera, in general, possess the complete abdominal suture. However, most genera within the tribes of the Rhyparochrominae have the incomplete suture. Seven stygnocorine genera have species with the complete suture and a number of other tribes have genera with this complete suture (Slater & Sweet, 1961). The suture between abdominal sterna 4 and 5 is fused in all the Rhyparochrominae except *Plinthisus*. The fusion is probably monophyletic. However this suture varies considerably with some species having a complete abdominal suture between abdominal sterna 4 and 5 that attains the connexival margin while in others the suture is incomplete, usually curving cephalad. There is also considerable variation in this curvature suggesting that the development of the incomplete suture is polyphyletic. A character of this kind can be acquired with relatively little morphological change and it is possible that the complete suture could be reacquired from the incomplete suture.

2. The presence of long head trichobothria is an important distinguishing character of the Rhyparochrominae. The length of these trichobothria varies considerably from

species to species and they are not present in some species. The shorter length or the complete absence of head trichobothria is probably due to the reduction or loss of these structures and therefore is considered the derived condition.

3. The orientation of the head varies from porrect to declivent and there is a definite correlation in head orientation with appendage length from species to species. The species that possess a porrect head have relatively long antennae and legs and the labium attains or exceeds the posterior coxae. Those species with a declivent head have relatively shorter appendages and the labium attains the mesocoxae or at most extends between the mesocoxae. According to Slater & Sweet (1970) the relict Stygnocorini of the Southern Hemisphere generally have an elongate body form, a porrect head and long appendages. This condition is prevalent in *Sweetocoris* and is considered the ancestral condition. Thus, the shortening of appendages and declivent head represent the derived condition.

4. Most species of *Sweetocoris* are clothed dorsally with elongate upstanding vestiture. One species, *drakensbergensis*, has relatively short semi-decumbent hairs and three species, *ceres*, *muticus*, and *nigromaculatus*, are nearly glabrous with at most inconspicuous short hairs. The upstanding dorsal vestiture is considered the ancestral type and the semi-decumbent vestiture and the nearly glabrous condition are probably specializations, which would indicate that the latter characters are derived. Since the upstanding dorsal vestiture is the prevalent condition in *Sweetocoris*, it is considered the ancestral condition.

5. Certain morphological characters are known to be associated with brachyptery. The long-winged condition must be considered to be the ancestral form since this wing form is common throughout the Hemiptera. *Sweetocoris* contains three species that are known only as brachypters (*fenestratus*, *bonspeiensis*, *hirsutus*); six species that have distinct short-winged and long-winged forms with no variation or gradation between these two conditions (*slateri*, *dissimilis*, *thunbergi*, *drakensbergensis*, *parafernestratus*); three species that are generally macropterous (*ceres*, *muticus*, *nigromaculatus*) but contain some submacropterous forms; two species (*pseudoceres*, *paraminutus*, the latter known from one specimen) with no variation in wing length, and *minutus* where there is considerable variation in the wing membrane length but the wings are never as short as in the brachypters of those species where discrete short and long-winged forms occur, or as short as the wings in the completely brachypterous species. The species that are entirely brachypterous show two types of wing membranes. *S. bonspeiensis* has a short opaque membrane, and *hirsutus* and *fenestratus* have a slightly longer translucent membrane with a transparent oval spot. All other species have translucent wings. Since the translucent wing is of most frequent occurrence and since it is negatively correlated with brachyptery in *Sweetocoris*, it is considered the ancestral type, and wing membranes which are opaque or translucent with the transparent oval spot are considered derived conditions from the translucent type.

Corial length varies in some of the brachypterous species but is of constant length in macropterous forms. *Bonspeiensis* and *fenestratus* have a shorter corium than do any other species of *Sweetocoris*. This condition of a shortened corium is always associated with brachyptery and is considered the derived condition. *Bonspeiensis* has an even shorter corium than does *fenestratus* and this probably represents the most highly derived condition of the character in this genus.

6. Another character probably influenced by brachyptery is pronotal shape. The laterally carinate pronotum is the prevalent condition in other genera of Stygnocorini. The macropterous forms of *Sweetocoris* have a laterally sub-carinate pronotum while the

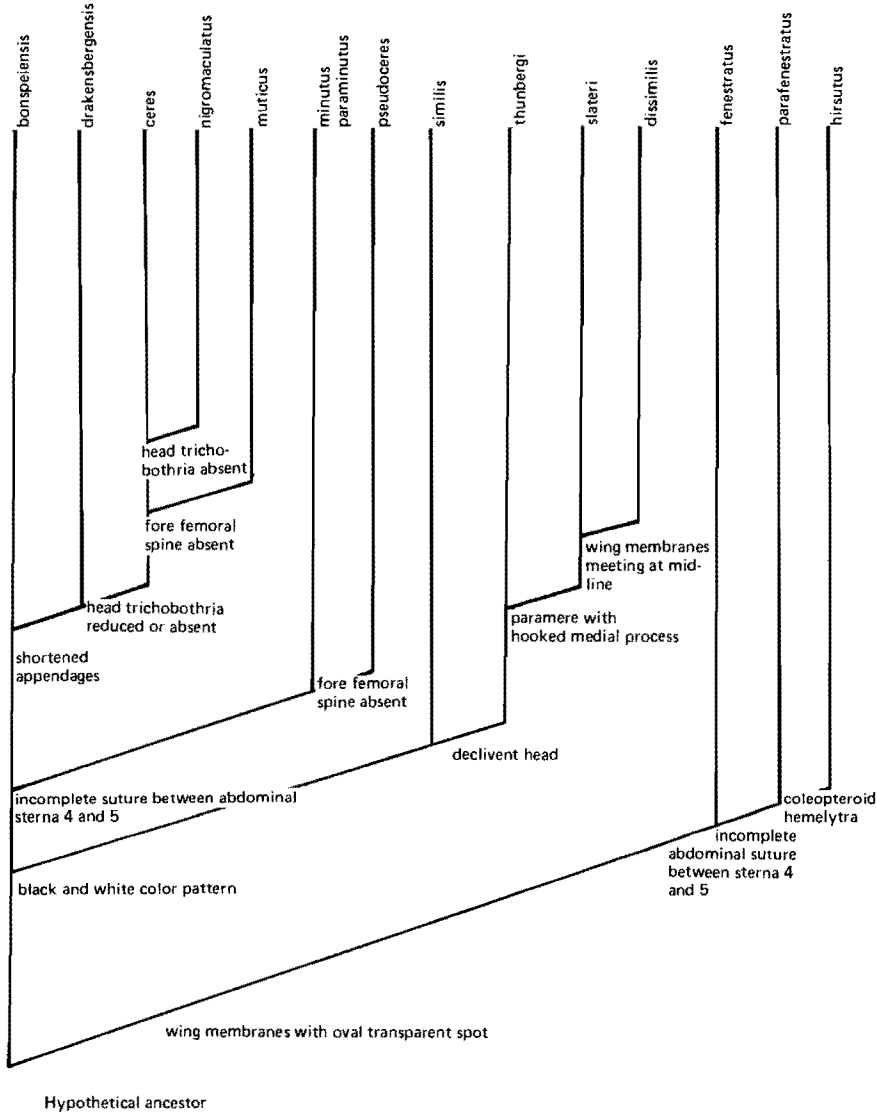


Fig. 1. Cladogram for species of *Sweetlocoris*.

brachypters have a rounded one. Therefore, the laterally rounded pronotum is considered the derived condition and to be associated with brachyptery.

7. One species, *hirsutus*, bears evenly spaced punctures over the entire surface of the corium. All other species have corial punctures arranged in rows, generally with two rows adjacent to the claval suture, another extending along the radial vein to the apical margin, and a few scattered punctures on the distal third with the intervening areas largely impunctate. The evenly punctate corium of *hirsutus* seems to be associated with brachyptery. The shape of the hemelytra with this unique puncture pattern is somewhat coleopteroid and is considered a derived condition.

8. Some characters may differ in size from species to species or be present or absent in otherwise closely related species. Generally when a character is present in one species, absent in another closely related species, it is assumed the absence is secondary and is a loss phenomenon (Crowson, 1970). Size variation in characters from large to small is generally due to a reduction phenomenon in the character under consideration. Characters are classified here as being ancestral or derived to a large extent on this basis. Characters useful in *Sweetocoris* are:

A. Most Hemiptera have ocelli. I, therefore, consider the absence of ocelli, or their reduction, as derived.

B. The fore femora in some sub-families of Lygaeidae may be armed with one or many spines. *Sweetocoris* has many species armed with a single fore femoral spine. This spine varies from a sharp, slender type to shorter and somewhat "stubby" types. Some species lack this spine entirely. I consider the sharp slender spine to be ancestral.

9. The shape of the paramere varies considerably between different species of *Sweetocoris*, particularly in its medial process. There are two basic paramere types from which all others can be derived (fig. 21a, g) and which I consider to be the ancestral types. *S. bonspeiensis* (fig. 21a) has 2 medial angular processes which form a sub-truncate projection. The black and white species complex has a medial process which is a modification of this type. *Fenestratus* has a sub-angular medial process which curves away from the blade, and all other remaining species have parameres with the medial process of this type. Modification of this character is used in the cladogram primarily to separate very closely related species.

10. Two basic colour patterns occur in species of *Sweetocoris*, one (figs 2-4) in which there is a black and white pattern dorsally and a second (figs 5-6) where the colours are essential tones of light orange to chestnut. Most species of the black and white group have black spots on the hemelytra. Two species, *minutus* and *paraminutus* lack these markings but are placed in this group because of the distinct light and dark colour pattern. The other group has various types of markings dorsally and the depth of colouration varies considerably. One species of the second group (*fenestratus*) has an almost black head, pronotum and scutellum. The black and white pattern is probably the derived condition since this colour pattern is uncommon in the Lygaeidae whereas tones of reddish-brown occur commonly.

WING POLYMORPHISM

As noted previously, some species of *Sweetocoris* exhibit wing polymorphism (Table I), a phenomenon that is widespread in the Rhyparochrominae. (For general discussion see Sweet, 1964). Biological data on species of *Sweetocoris* will be published later. However, the presence of brachyptery in *Sweetocoris* appears to be correlated

chiefly with relative ecological permanency of habitat. As true of Lygaeidae in general, there is no differentiation sexually in the occurrence of wing polymorphism.

The species *fenestratus*, *hirsutus*, and *bonspeiensis* in which no macropterous forms are known appear to be restricted geographically to the stable floral region encompassing the Cape macchia. Brinkhurst (1958) and Sweet (1964) suggest that species which exhibit brachyptery are largely restricted to permanent habitats.

Three species are brachypterous (*fenestratus*, *hirsutus* and *bonspeiensis*). *Bonspeiensis* and *hirsutus* are represented by small series but 160 specimens of *fenestratus* have been available for study. It is evident in the case of *fenestratus* that if macropters exist they are rare. Four species are macropterous (*pseudoceres*, *muticus*, *ceres*, *nigromaculatus*). However in some of these specimens the wing membranes are shorter than the abdomen and relatively slender and are actually submacropterous. *Pseudoceres* does not vary in wing length in the series of 257 specimens. The remaining species exhibit wing polymorphism and can be divided into two groups. The first group consists of the species *thunbergi*, *parafernestratus*, *drakenbergensis*, and these species have a high percentage of brachypters, 98%, 89% and 72% respectively. The high percentages of brachypters in the populations is consistent with results of previous studies on wing polymorphism in the Rhyparochrominae (Sweet, 1964). However, the second group of species *slateri*, *dissimilis* and *minutus* have a relatively high percentage of macropters, 80%, 65% and 62%, respectively. The high percentage of macropters in these populations is a departure from the expected number. The field notes were studied and these notes indicated that the two species *slateri* and *dissimilis* had been swept from vegetation as well as ground collected. Therefore the large number of macropters collected were probably due to a biased sample. Since *minutus* is a widespread species, having been taken by various collectors in differing localities, no definitive explanation can be given at this time why the macropterous forms are more abundant.

TABLE 1. Wing polymorphism in *Sweetocoris*.

Species	N	% Brachypters	% Macropters
<i>S. bonspeiensis</i>	16	100	0
<i>S. fenestratus</i>	150	100	0
<i>S. hirsutus</i>	8	100	0
<i>S. thunbergi</i>	49	98	2
<i>S. parafernestratus</i>	272	89	11
<i>S. drakenbergensis</i>	153	72	28
<i>S. similis</i>	2	50	50
<i>S. minutus</i>	242	38	62
<i>S. dissimilis</i>	268	35	65
<i>S. slateri</i>	92	20	80
<i>S. muticus</i>	96	0	100
<i>S. pseudoceres</i>	257	0	100
<i>S. ceres</i>	11	0	100
<i>S. nigromaculatus</i>	6	0	100
<i>S. paraminutus</i>	1	0	100

GENITALIA

Sweetocoris shows little or no interspecific variation in the phallic structures (fig. 15). The parameres by contrast definitely differentiate the species (fig. 21a-l) particularly by the shape of the medial process. The medial process of *bonspeiensis* is acutely produced toward the blade while in the other species of the black and white complex the process is sub-angular, curving toward the abdomen. This process in

slateri and *dissimilis* is rounded and hooked toward the abdomen while in *thunbergi* and *minutus* it is bifidly hooked. *Parafenestratus* and *fenestratus* have a sub-angular process while in *hirsutus* it is acutely produced, curving toward the blade.

Key to the species of *Sweetocoris*

- 1 Long winged with membrane attaining at least the posterior half of abdominal segment 8 2
- Short winged with membrane not attaining the posterior half of abdominal segment 8 12
- 2 Abdominal suture between sterna 4-5 complete, reaching connexival margin (figs 13, 14); head trichobothria reduced or absent; dorsum clothed with short semi-decumbent hairs (fig. 19) 3
- Abdominal suture between sterna 4-5 incomplete, curving cephalad laterally, ending in trichobothrial furrow (fig. 5); head trichobothria well developed, prominent; dorsum clothed with elongate, upstanding hairs (fig. 20) 6
- 3 Fore femora mutic 4
- Fore femora armed below on distal third with a spine 5
- 4 Head trichobothria absent; labium at most attaining anterior margins of metacoxae; dorsum sparsely clothed with a few short hairs **muticus**
- Head trichobothria present but reduced; labium extending well between metacoxae; dorsum clothed densely with short decumbent hairs **drakensbergensis**
- 5 Head trichobothria present, but reduced **nigromaculatus**
- Head trichobothria absent **ceres**
- 6 Fore femora mutic; area of calli smooth, highly polished, impunctate **pseudoceres**
- Fore femora armed below with a single spine on distal third; area of calli subshining, or if polished, with scattered punctures present or entirely punctate 7
- 7 Lateral margins of anterior pronotal lobe only slightly rounded, nearly straight, with area of calli indistinct, flattened; transverse impression absent (fig. 9) **parafenestratus**
- Lateral margins of anterior pronotal lobe rounded with area of calli elevated; transverse impression shallow but present (fig. 8, 10) 8
- 8 Head and pronotum dark brown to black; pronotum banded narrowly with testaceous on posterior margin 9
- Head and anterior pronotal lobe with reddish tones; pronotum varying from light to dark with posterior lobe lighter 10
- 9 Less than 2,5 mm in length **minutus**
- Greater than 2,5 mm in length **paraminutus**
- 10 Head porrect; length greater than 3,0 mm **similis**
- Head declivent; length less than 3,0 mm 11
- 11 Paramere with elongate, stout blade which curves abruptly on the distal half (fig. 21); labium extending between mesocoxae **slateri**
- Paramere with shorter, narrow blade which curves gently on the distal third; labium extending between metacoxae (fig. 21) **dissimilis**
- 12 Abdominal suture between sterna 4/5 complete, terminating at connexival margin 13
- Abdominal suture 4/5 incomplete, curving cephalad, terminating at trichobothrial furrow 15
- 13 Corium and membrane reduced markedly; membrane entirely opaque, appearing as truncated flap or with transparent oval patch 14
- Corium and membrane not reduced markedly; membrane translucent, normal size **drakensbergensis**
- 14 General coloration a strongly contrasting dark brown to black and white to testaceous; fore femora mutic; wing membrane entirely opaque **bonspeiensis**
- General coloration of muted reddish tones varying from light to dark; fore femora armed with spine on distal third; wing membrane opaque with a transparent patch **fenestratus**
- 15 Corium evenly and entirely punctate; clavus and corium fused **hirsutus**
- Corium with punctures arranged in rows, intervening area largely impunctate; clavus and corium not fused 16
- 16 Wing membranes touching at midline but not overlapping (fig. 18); membrane opaque with transparent patch **parafenestratus**
- Wing membranes overlapping at midline (fig. 17); membrane translucent without a differentiated transparent patch 17

- 17 Labium extending well between metacoxae; wing membrane viewed laterally not on same plane as corium but sloping downward toward midline **dissimilis**
 Labium at most attaining anterior metacoxal margins; wing membrane viewed laterally usually on same plane as corium 18
- 18 Wing membranes almost completely overlapping, always attaining anterior margin of abdominal tergum 7; usually less than 2,5 mm long **minutus**
 Wing membranes only slightly overlapping, never exceeding anterior margin of abdominal tergum 7; greater than 2,5 mm long 19
- 19 Head porrect; labium attaining metacoxal margins **similis**
 Head declivent; labium extending at most between mesocoxae 20
- 20 Paramere with hooklike medial process curved down away from blade (fig. 21i); usually more than 9 punctures in central row of clavus **slateri**
 Paramere with medial process bifidly hooked (fig. 21j); usually less than 9 punctures in central row of clavus **thunbergi**

***Sweetocoris bonspeiensis* spec. nov.**

Head, pronotum except for large caudo-lateral testaceous maculae, scutellum, thoracic pleura and abdomen shining black; tylus dark brown; basal third of hemelytra chiefly testaceous becoming dark chocolate brown on clavus distad of scutellar apex and irregularly on distal $\frac{1}{3}$ of corium; membrane remnant opaque white; coxae and posterior metathoracic margin white to testaceous; labium and legs brown with tarsi paler; trochanters and distal third of femora darker; antennae dark brown.

Vestiture: dorsum sparsely clothed with elongate upstanding hairs; ventral surface of head and thoracic pleura nearly glabrous with at most a few inconspicuous, reduced, scattered hairs.

Puncture pattern: head, pronotum and scutellum coarsely punctate with area of calli smooth and impunctate; ventral and pleural surfaces except abdomen more finely punctate.

Head relatively very large, acuminate, only slightly declivent, strongly convex across vertex; ocelli reduced, tylus extending at least to middle of first antennal segment, length head 0,60, width 0,60, interocular space 0,36; pronotum with lateral margins very slightly sinuate, tapering only slightly anteriorly; anterior lobe twice as long as posterior lobe, transverse impression obsolete mesally, posterior margin straight, length pronotum 0,52, width 0,68; length scutellum 0,32, width 0,40; hemelytra with lateral margin slightly concave from base to distal end of scutellum; clavus and corium fused; membrane reduced to a small truncated flap extending from midline caudo-laterally almost to caudo-lateral margin of abdominal tergum 4; distance apex clavus-apex corium 0,12; distance apex corium-apex abdomen 1,00; length claval commissure 0,40; abdominal sterna 2-5 fused, suture between sterna 4 and 5 complete, reaching connexival margin; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area distinctly lighter than metapleuron; legs elongate; fore femora slender, mutic; labium exceeding posterior margin of metacoxae, first segment reaching posterior margin of head; length labial segments 1, 0,40; 2, 0,48; 3, 0,40; 4, 0,28; antennal segments 1 and 2 terete, 3 and 4 narrowly fusiform; length antennal segments 1, 0,32; 2, 0,72; 3, 0,52; 4, 0,48; total body length, 2,96.

Paramere with rounded lateral process and two medial angular processes forming a sub-truncate projection at distal end of shank then narrowing to elongated blade curving medially at distal end (fig. 21a).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*: Cape Point Nat. Res., 6,5 mi. N. of Cape Point, 7 Dec. 1967 (M. H. Sweet) No. 100. In National Collection of Insects, Pretoria.

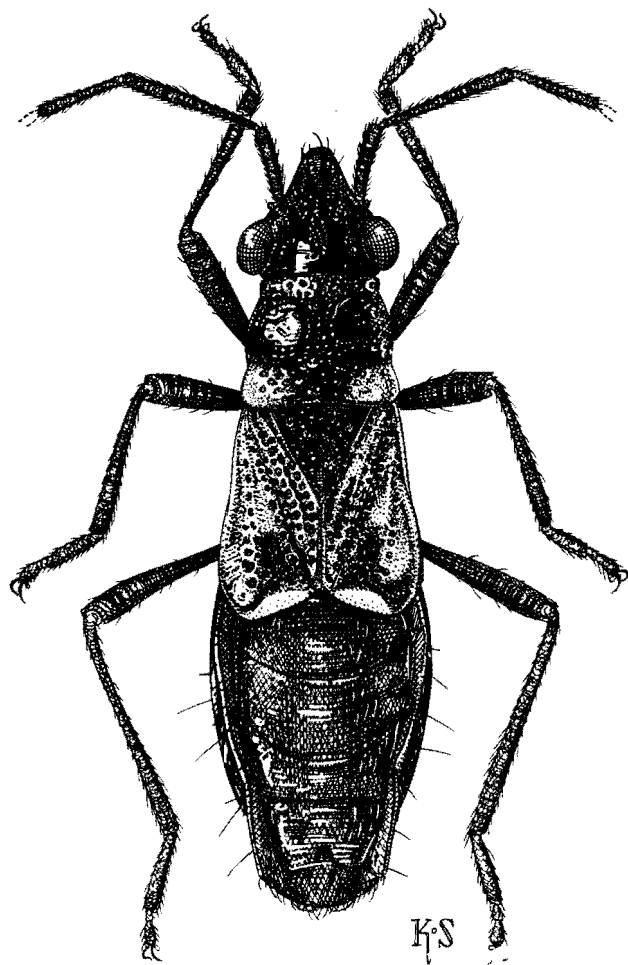


Fig. 2. *Sweetocoris bonspeiensis* spec. nov., dorsal view.

Paratypes: SOUTH AFRICA: *Cape Province*, 7 ♂, 4 ♀, same data as holotype—1 ♂, 2 ♀, Cape Pt. Nat. Res., 4 mi. N. Cape Pt., 3 Dec., 1967 #98 (M. H. Sweet). In National Collection of Insects, Pretoria; J. A. Slater and M. H. Sweet collections.

The dorsal colour pattern varies from nearly black and white to dark brown and "off" white. Females tend to be larger than males. Antennal oligomery is present in 2% of specimens. Segment two and three appear as one fused segment, but this is difficult to determine.

S. bonspiensis, *muticus*, *nigromaculatus*, *drakensbergensis*, and *ceres* are very closely related species. The relationships are discussed in detail following the species description of *drakensbergensis*. *Bonspiensis* appears to be the most generalized species in the group in that it has more ancestral characters than does any other species of *Sweetocoris*. (See previous discussion of phylogeny and the cladogram.)

***Sweetocoris muticus* spec. nov.**

Head, anterior pronotal lobe, scutellum, distal half of corium, ventral and lateral body surfaces dark chocolate brown to shining black; posterior margin of pronotum, extreme apex of scutellum, acetabula, anterior and posterior pleural margins and base of clavus reddish brown; remainder of clavus and basal half of corium testaceous; clavus marked with a small elongate brown streak adjacent to scutellar apex between inner puncture rows; corium with a similar smaller patch of brown immediately mesad of radial vein just anterior to level of scutellar apex; a testaceous macula present near lateral margin midway along darkened distal portion of corium; appendages reddish brown with first and second tarsal segments lighter; wing membrane translucent testaceous with large pale brown median macula.

Vestiture: head and thorax dorsally nearly glabrous with at most a few inconspicuous scattered reduced hairs; hemelytra with a few scattered semi-decumbent hairs; head trichobothria absent; ventral surfaces of head and thoracic pleura nearly glabrous; abdomen clothed with very short decumbent hairs.

Puncture pattern: head, pronotum and scutellum punctate, punctures more coarse and dense on head; area of calli sparsely punctate; corium with two rows of punctures adjacent to claval suture spaced closer together than those on clavus; distal half of corium with indistinct scattered punctures; ventral surfaces of head and thoracic pleura more coarsely punctate than dorsum; metapleural (lateral) margin impunctate.

Head acuminate, only slightly declivent, convex across vertex, tylus extending at least to distal half of antennal segment 1, ocelli present, length head, 0,48, width, 0,72, interocular space, 0,40; lateral margins of pronotum sub-carinate, tapering anteriorly, sinuate, separated into lobes, area of calli slightly elevated, length pronotum, 0,60, width, 1,00, scutellum slightly elevated across basal margin, length scutellum, 0,48, width 0,44; hemelytra with lateral corial margins sinuate, membrane attaining or almost attaining apex of abdomen, distance apex clavus—apex corium, 0,60; distance apex corium—apex abdomen, 0,64; length claval commissure, 0,48; abdominal sterna 2–5 fused, sterna 4 and 5 complete, terminating at connexival margin; metathoracic scent gland auricle conventional for genus; fore femora slightly incrassate, mutic; antennal segment 1 and 2, terete, 3 and 4 slightly fusiform; length antennal segments 1, 0,32; 2, 0,60; 3, 0,48; 4, 0,52; labium extending to posterior margin of mesocoxae, first segment just reaching posterior margin of head; length labial segments 1, 0,40; 2, 0,40; 3, 0,32; 4, 0,16; total body length 3,36.

Paramere with a rounded lateral process tapering to relatively wide elongated blade; medial process slightly rounded, curving away from blade and narrowing to shank (fig. 21b).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*, Muizenberg Mt., Cape Penin. El. 200, 8 Oct., 1967 (M. H. Sweet) No. 23. In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 45 ♂, 44 ♀ same data as holotype—1 ♂, Cape Pt. Nat. Res. 450', 11 Oct. 1967, No. 26 (M. H. Sweet)—1 ♂, 4 mi. W. Gydo Pass Summit N. Ceres, 26 Jan. 1968 (S.S.S.S.)—1 ♀, Muizenberg Mt., 500', Cape Penin., 9–13 Nov. 1967, No. 71 (M. H. Sweet)—1 ♀, Sneeu Berg Cedarberg Mt., 27.12.1968 (J. Munting)—1 ♀, Oudtshoorn, Zebra (CP). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

The specimens in this series vary in colouration on the head and pronotum from black to chestnut brown. In many specimens the posterior pronotal margin has a band-like strip of lighter colouration. The spots on the clavus and the corium tend to vary in size and depth of colour from light brown to black. Many specimens are submacropterous. The wing membranes attain at least the basal half of abdominal tergum eight. Antennal oligomery similar to that of *S. bonspeliensis* is present in 2% of specimens.

***Sweetocoris ceres* spec. nov.**

Entire head, thorax and scutellum shining black, banded narrowly with ferruginous across anterior pronotal margin, anterior and posterior metapleural margins and posterior abdominal terga; posterior pronotal lobe reddish-brown; tylus slightly lighter than head; clavus and basal half of corium testaceous but marked with a ferruginous macula distad of scutellar apex between inner two rows of punctures and another lighter macula below humeral lobes on hemelytra slightly above level of scutellar apex adjacent to corial punctures and mesad of radial vein; distal half of corium ferruginous with a testaceous macula in centre extending from lateral margin mesally to radial vein; membrane chiefly testaceous with a pale brown streak at apex; appendages ferruginous, tarsi reddish-brown, antennal segments three and four chestnut.

Vestiture: dorsal and ventral surfaces of head, pronotum and thoracic pleura nearly glabrous; head trichobothria absent; abdomen sparsely clothed with short decumbent hairs; appendages clothed with moderately dense short hairs.

Puncture pattern: head, pronotum and scutellum with fine punctures, posterior pronotal lobe less punctate laterally; a few indistinct punctures scattered on distal third of corium; ventral surfaces of head and thoracic pleura coarsely punctate.

Head slightly declivent, convex across vertex, ocelli present, length head, 0.40, width, 0.72, interocular space, 0.44; pronotum subcarinate and slightly sinuate laterally, tapering anteriorly, area of calli nearly undifferentiated, transverse impression shallow, posterior margin straight, length pronotum, 0.62, width, 1.00; length scutellum, 0.44, width, 0.48; hemelytra with membrane sloping downward, attaining apex of abdomen, distance apex clavus—apex corium, 0.64, distance apex corium—apex abdomen, 0.56, length claval commissure, 0.48; abdominal sterna 2–5 fused, suture between sterna 4 and 5 complete, reaching connexival margin; metathoracic scent gland auricle conventional for genus; fore femora incrassate, armed with a short spine below on distal third; labium attaining anterior metacoxal margin, first segment slightly exceeding posterior margin of head; length labial segments 1, 0.36; 2, 0.34; 3, 0.30; 4, 0.26; antennal segments 1 and 2 terete, 3 and 4 slightly fusiform; length antennal segments 1, 0.28; 2, 0.60; 3, 0.48; 4, 0.56; total body length, 3.12.

Paramere with broad slightly angular lateral process similar to that of *muticus* (fig. 21b) but with rounded medial process narrower—somewhat more acutely produced (fig. 21d).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*, just North of Ceres, 1 400' El. 20 Oct., 1967 (M. H. Sweet) No. 42. In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 5 ♂, 1 ♀, same data as holotype—2 ♂, 3 ♀, Schoemanspoort, 10 mi. N. of Oudtshoorn, 1 200', 18 Nov. 1967, No. 77a (M. H. Sweet). In National Collection of Insects, Pretoria, J. A. Slater and M. H. Sweet collections.

The specimens of this series vary slightly in wing length from macropterous to sub-macropterous forms. Pronotal modification is present with some forms bearing a shallow transverse impression and other forms lacking the transverse impression mesally. One specimen has two fore femoral spines on both legs with the remainder bearing one spine.

***Sweetocoris nigromaculatus* spec. nov.**

Entire head, pronotum, scutellum, distal half of corium and thoracic pleura shining dark brown becoming lighter on posterior metathoracic margin and across humeri; clavus marked with a lighter brown macula distad of scutellar apex; corium marked with a similar brown macula mesad of radial vein anterior to level of scutellar apex and a larger testaceous macula midway on dark portion located laterad of radial vein, extending to lateral margin; translucent wing membrane chocolate brown becoming lighter at base; appendages dark brown becoming lighter on trasal segments 1 and 2.

Vestiture: dorsum sparsely clothed with very short decumbent hairs; head trichobothria reduced; ventral surfaces of head and thoracic pleura nearly glabrous with at most a few scattered hairs; abdomen clothed with short decumbent hairs.

Puncture pattern: head, pronotum and scutellum very finely punctate with small central area of calli impunctate; middle row of claval punctures 17 in number; ventral surface of head and thoracic pleura finely punctate.

Head moderately declivent, convex across vertex, tylus extending to distal third of antennal segment 1, ocelli present, not reduced, length head, 0,40, width 0,64, interocular space, 0,40; pronotum rounded laterally, tapering anteriorly, area of calli slightly elevated, transverse impression obsolete, posterior margin straight, length pronotum, 0,68; width 0,92; scutellum flat, length scutellum, 0,36, width 0,44; lateral corial margins slightly sinuate; membrane sloping downward, covering anterior half of abdominal segment 7; distance apex clavus—apex corium, 0,52; distance apex corium—apex abdomen, 0,44; length claval commissure, 0,48; abdominal sterna 2–5 fused, suture between sterna 4 and 5 complete, terminating at connexival margin; metathoracic scent gland curved posteriorly to form a hook, evaporative area slightly lighter than metapleuron; fore femora slightly incrassate, armed below with a short dark brown spine on distal third; antennal segments 1 and 2 terete, 3 and 4, slightly fusiform; left antenna three segmented; length antennal segments 1, 0,28; 2, 0,56; 3, 0,48; 4, 0,48; labium extending between mesocoxae, first segment slightly exceeding posterior margin of head; length labial segments 1, 0,40; 2, 0,40; 3, 0,28; 4, 0,16; total body length 2,92.

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*, just North Outiniqua Pass, Summit S. Oudtshoorn. 7 Feb. 1968 (T. Schuh, J. & S. Slater, M. Sweet). In National Collection Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 3 ♀ same data as holotype,—1 ♂, 2 mi. N. Ysterhoutrug Picnic Site, 28 mi. (sic = 18 mi) N.E. Knysna, 10 Feb. 1968, No. 88 (S.S.S.S.)—1 ♂, Dutoits Kloof, 10 mi. W. of Worcester, 875', 23 Oct. 1967, No. 49 (M. H. Sweet)—1 ♂, Ysterhoutrug Picnic Site, 18 mi. N.E. Knysna 10 Feb. 1968 (S.S.S.S.). In National Collection of Insects, Pretoria; J. A. Slater and M. H. Sweet collections. Adults and nymphs on *Pentameris thuarii* Beauv.

There is little variation in this series. The holotype is a submacropterous form with some pronotal modification present. The macropterous forms have a shallow pronotal transverse impression that is not present in the holotype.

***Sweetocoris drakensbergensis* spec. nov., fig. 3**

Head pronotum, scutellum, distal half of corium, ventral and pleural surfaces shining dark brown to black becoming bright reddish brown on tylus, marginal area of posterior pronotal lobe, extreme scutellar apex, posterior metapleural margins and terminal abdominal segments; clavus and basal half of corium testaceous to whitish with clavus bearing a dark brown macula adjacent to scutellar apex between inner two rows of punctures; corium with a dark brown spot slightly anterior to level of scutellar apex immediately mesad of radius and with a small testaceous spot laterad of radial vein midway along dark portion of corium; translucent wing membrane chocolate brown; appendages nearly uniformly ferruginous with tarsal segments 1 and 2 light, 3 darker.

Vestiture: dorsum clothed moderately dense with semidecumbent hairs; head trichobothria reduced; appendages clothed with hairs of same length as dorsum; ventral surfaces of head and thoracic pleura nearly glabrous with inconspicuous reduced hairs; abdominal sterna sparsely covered with short decumbent hairs.

Puncture pattern: head, pronotum and scutellum bearing conspicuous shallow punctures; area of calli nearly impunctate; ventral surfaces of head and thoracic pleura shallowly punctate.

Head moderately acuminate, non-declivent, convex across vertex, tylus reaching distal third of antennal segment 1, ocelli present, not reduced, length, head, 0,48, width, 0,60, interocular space, 0,40; pronotum laterally sinuate, sub-carinate, tapering anteriorly, area of calli elevated, transverse impression obsolete mesally, posterior margin straight, length pronotum, 0,64, width, 0,92; scutellum very slightly elevated at base, length scutellum, 0,40, width, 0,48; hemelytra with wing membrane attaining or slightly exceeding apex abdomen, distance apex clavus—apex corium, 0,60; distance apex corium—apex abdomen, 0,56; length claval commissure, 0,48; abdominal sterna 2–5 fused, suture between sterna 4 and 5 complete, terminating at connexival margin; metasternum carinate; scent gland auricle curved posteriorly to form a hook; fore femora slightly incrassate, mutic; labium extending beyond metacoxae, first segment extending beyond posterior margin of head; length labial segments 1, 0,44; 2, 0,44; 3, 0,32; 4, 0,20; antennal segments 1 and 2 terete, 3 and 4 fusiform; length antennal segments 1, 0,24; 2, 0,56; 3, 0,48; 4, 0,48; total body length, 3,24.

Paramere with a rounded lateral process narrowing to relatively short but wide blade; medial process acutely produced away from blade, narrowing to shank (fig. 21c).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Natal*, Summit Van Reenen's Pass, El. 5 700', 14 April 1968 (J. & S. Slater, T. Schuh). In National Collection of Insects, Pretoria.

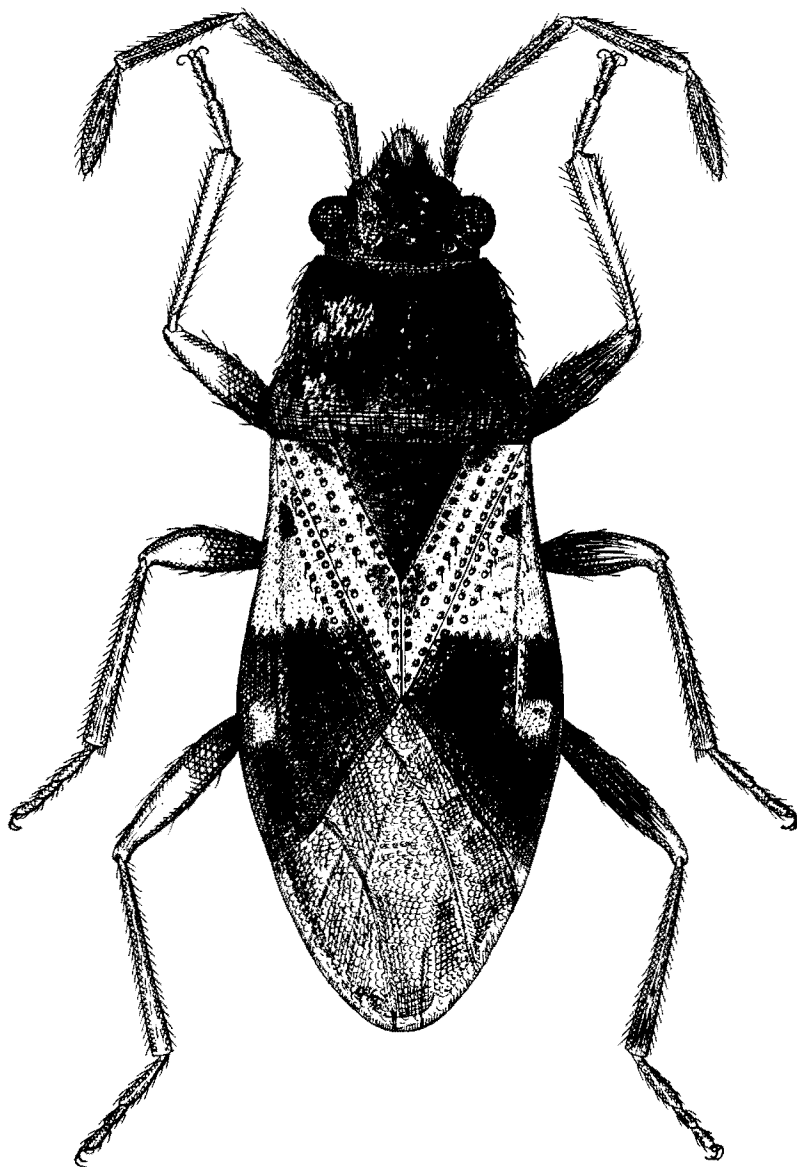


Fig. 3. *Sweetocoris drakensbergensis* spec. nov., dorsal view.

Paratypes: SOUTH AFRICA: *Natal*, 28 ♂, 28 ♀, same data as holotype—1 ♂, Cathedral Peak, Drakensberg, March 1959 (B. R. & P. Stuckenberg)—2 ♂, 4 ♀, Royal Nat. Park, The Cascades, 5 100', 4–5 Mar. 1968, Nos. 203, 206 (J. & S. Slater, M. H. Sweet, J. Munting)—1 ♂, 4 ♀, Giants Castle Park, 5 800', 6 Mar. 1968 (S.S.S.) U.V. light trap—3 ♂, 1 ♀, same locality and date (S.S.S.S.) No. 207—1 ♂, same locality, 6.3.1968 (J. Munting)—*Lesotho*, 7 ♂, 6 ♀, Sani Pass, 8 000', 10.3.1968 (J. Munting)—37 ♂, 28 ♀, same locality, 10 Mar. 1968 (J. Munting, S. Slater) No. 215—1 ♂, 1 ♀, same locality, 5 400', 14 Mar. 1968 (J. A. Slater). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

The dorsal vestiture varies from some specimens that are nearly glabrous to those distinctly clothed with short decumbent hairs. The glabrous specimens may have lost the vestiture from handling. The dense semi-decumbent vestiture is the prevalent condition and can best be seen from a lateral view. The spots on the clavus and the corium vary in size and depth of colour from pale brown to black and the colouration of the head and pronotum also varies from brown to black. There are 109 brachypters and 44 macropters in the series. The brachypterous forms have wing membranes which overlap at the midline attaining the anterior third of abdominal tergum 6.

In this complex *S. bonspeiensis*, *ceres*, *muticus*, *nigromaculatus* and *drakensbergensis* are very closely related. These species all have a complete suture between abdominal sterna 4 and 5. I believe *bonspeiensis* is the most primitive species of the complex because it has the complete abdominal suture, an acuminate head, well developed head trichobothria, elongate upstanding vestiture, long appendages and what appears to be a generalized paramere shape (fig. 21a). *Muticus* has lost the head trichobothria, is nearly glabrous, and has shorter legs, antennae and labium. Some modification occurs in the medial process of the paramere (fig. 21b) but the paramere is still close to the generalized condition. *Drakensbergensis* shows derived conditions in the shorter vestiture consisting of shortened semi-decumbent hairs and has somewhat shorter appendages than does *bonspeiensis* (but not as short as the other species in the Cape area). *Nigromaculatus* has reduced head trichobothria and vestiture similar to *ceres* but is more sparsely clothed than *drakensbergensis*. Its reduction of length of appendages is similar to that of *muticus* and the head is slightly declivent. *Ceres* had no head trichobothria, a slightly declivent head, appendages reduced slightly less than *drakensbergensis*, nearly glabrous body surface, and some modification of the medial process of the parameres (fig. 21d). It is difficult in this complex to determine cladistically what species are most closely related to one another since the various derived characters seem to occur independently. The discussion under phylogeny and the cladogram included in that section shows the possible evolutionary relationships of this complex.

***Sweetocoris pseudoceres* spec. nov., fig. 4**

Dorsal surface strongly shining; head, pronotum, and scutellum chiefly black, becoming testaceous to ochraceous across anterior pronotal margin, more broadly across posterior margin over humeral lobe and at extreme apex of scutellum; clavus and corium with a diffuse brown spot between inner two rows of punctures immediately posterior to scutellar apex; corium with basal half testaceous with a dark brown spot immediately mesad of radial vein and slightly anterior of level of scutellar apex; distal half of corium dark brown with a large testaceous spot located midway on darkened area and laterad of radial vein extending to lateral margin; wing membrane translucent,

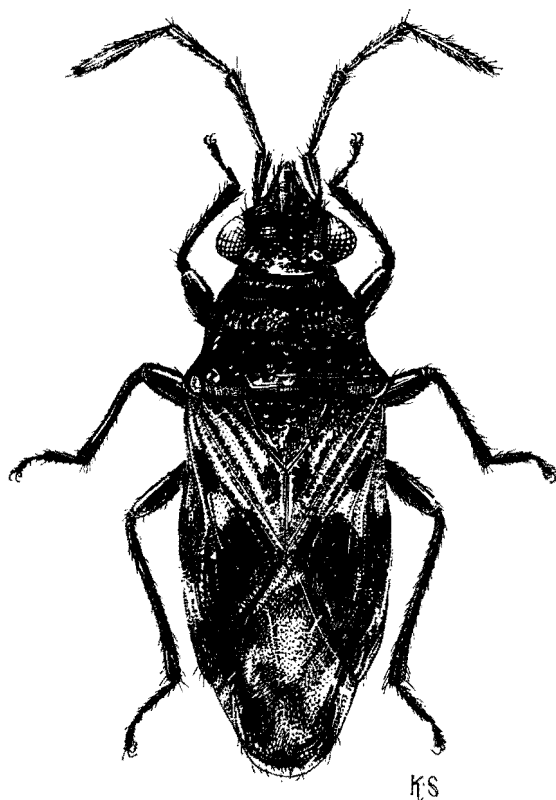


Fig. 4. *Sweetocoris pseudoceres* spec. nov., dorsal view.

testaceous, with a large pale brown maculae centrally; ventral and pleural surfaces black, banded with ochraceous along posterior propleural and metapleural margins; appendages brownish yellow with antennal segment 4 and half of 3 dark brown.

Vestiture: dorsum clothed with elongate, upstanding hairs; head trichobothria present, not reduced; ventral surfaces of head and thoracic pleura nealy glabrous with at most a few scattered hairs; abdomen clothed with slightly shorter hairs than those on dorsum but becoming longer on posterior segments.

Puncture pattern: head, pronotum and scutellum coarsely punctate with scutellar punctures smaller; calli impunctate; nine claval punctures in middle row, outer and inner rows spaced closer together than middle row; a few small punctures scattered on distal half of corium; ventral surfaces of head and thoracic pleura finely punctate becoming impunctate on lateral pleural margins.

Head acuminate, non-declivent, convex across vertex, tylus extending to distal third of antennal segment 1, ocelli present, not reduced, length head, 0,40, width, 0,56,

interocular space, 0,32; pronotum rounded laterally, tapering anteriorly, lateral margins sinuate, area of calli elevated, transverse impression obsolete mesally, posterior margin straight, length pronotum, 0,48, width, 0,80; scutellum flat, length scutellum 0,32, width, 0,36; hemelytra with wing membranes sloping downward, slightly exceeding tip of abdomen, distance apex clavus – apex corium, 0,40 distance apex corium – apex abdomen, 0,48, length claval commissure, 0,40; fore femora slender, mutic; labium extending between mesocoxae, first segment not reaching posterior margin of head; length labial segments 1, 0,32; 2, 0,36; 3, 0,32; 4, 0,16; antennal segments 1, 0,20; 2, 0,40; 3, 0,32; 4, 0,36; total body length, 2,68.

Paramere with lateral process curved, “knoblike”, medial process acute, slender curving hook-like toward base (fig. 21f).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Transvaal*, 13 mi. S. Barberton, 5 300' el. No. 226, 24 Mar. 1968 (T. Schuh, J. & S. Slater, M. H. Sweet). In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Transvaal*, 103 ♂, 94 ♀ same data as holotype 24 ♂, 16 ♀—14 mi. S. Barberton, 5 200', 24 Mar. 1968, No. 224 (S.S.S.S.). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

All specimens of this species are macropterous. Variation occurs chiefly in depth of coloration from dark brown and testaceous to black and white. The middle row of claval punctures is always coarser than the other two rows. Two percent of the specimens are oligomerous, similar in type to *bonspeiensis*.

S. pseudoceres is related to the complex of species previously discussed. *Pseudoceres* has a black and white colour pattern and relatively long appendages similar to the previously discussed black and white complex. However, *pseudoceres* has an incomplete suture between abdominal sterna 4 and 5 whereas species of the complex have the complete suture. The presence of the incomplete suture, a derived character (see phylogeny) indicates *pseudoceres* probably evolved at a later period.

Sweetocoris minutus (Scudder) comb. nov.

Lasiosomus minutus Scudder, 1962, *Annls. Mus. r. Afr. centr. Sér. 8* (Zool.): 110, 421–422; Slater, 1967, *Proc. ent. Soc. Wash.* **69**: 244–245.

Lasionomus bellus Slater, 1964, *S. African Animal Life* **10**: 159–160.

Lasiosomus minutus Scudder closely resembles *S. paraminutus* and *pseudoceres*. The antennal and labial ratio, elongated upstanding vestiture, sclerotized corium, subcarinate pronotum and metathoracic scent gland auricle with a wide lip are prevalent conditions occurring in *Sweetocoris*. In addition phallic structures (number and diameter of coils of the gonoporal process, holding sclerites and sperm reservoir) are identical to species of *Sweetocoris*. Therefore, *minutus* is placed in *Sweetocoris*.

Scudder's original description (1962) and Slater's description of *Lasiosomus bellus* adequately describe *minutus*. I have remeasured the holotype and find it to be 2,48 in length and not 2,60 as reported by Scudder in his original description. The series examined contained over 200 specimens extending from South Africa to Tanzania. The following observations were made concerning variation in the species: the specimens from Natal and the Transvaal tend to be quite similar in size and coloration. Depth of body coloration varies from brown to nearly black as with most species of the genus and females are darker in colour and larger than males. The series of specimens from the

Zuurberg area are smaller and lighter than most specimens in the series but included are two specimens which appear nearly identical to the series from Natal and Transvaal. The paramere (fig. 21) of specimens from the above three areas appears to be identical. *S. minutus* has an interesting wing variability which probably accounts for the differences in pronotal structure. The wings vary in length but always overlap completely. The wing length varies, in some specimens exceeding the apex of the abdomen, in others only covering abdominal tergum 7, and with intermediate conditions present.

Minutus is probably most closely related to *paraminutus* because of similarities in coloration, pronotal shape, puncture pattern, and labial ratio. The paramere (fig. 21c) is similar to that of *thunbergi* (fig. 21j), both species exhibiting the double hook-like medial process. This is evidently a convergence phenomenon as the two species do not otherwise show evidence of close relationship.

Minutus is the most widely distributed species in *Sweetocoris*, occurring at high elevations in tropical Africa, the Transvaal and Natal, and lower elevations in the eastern and south western Cape. *Minutus* was probably widespread in East tropical Africa before the average temperature increased and the annual rainfall decreased which then resulted in the spreading of the savannah. The species either died out or moved to the mountains where the habitat was suitable. The isolation that followed this movement explains the present distribution in Africa. This species is radiating and spreading into the eastern and south-west Cape where the climate is temperate.

Included in this series are paratypes from the series described as *bellus* (= *minutus*) by Slater (1964). This paratype series contains four species, *minutus*, *thunbergi*, *slateri* and *dissimilis*. The holotype *bellus* is actually *minutus* [compared by M. H. Sweet at the British Museum (Natural History)]. The specimens from the south-west Cape in the paratype series are probably *slateri* or *thunbergi* while those from the eastern Cape Province are probably *minutus*, and those from the Transvaal, Natal and tropical Africa are either *minutus* or *dissimilis*.

MATERIAL EXAMINED. ♂ Holotype: TANZANIA: Uluguru Mts., Sommet du Kidunda, 1 800–1 950 m, 3-V-1957 (P. Basilewsky et N. Leleup).

Paratype: TANZANIA: Uluguru Mts., Moy Mgeta, 1 300 m, 30-IV/II-V 1956 (P. Basilewsky et N. Leleup).

SOUTH AFRICA: *Transvaal*, 12 ♂, 7 ♀, Long Tom Pass, 4 500', West of Sabie, 24 Apr. 1968 (M. H. Sweet) No. 239—1 ♂, 15 mi. N.E. Machadadorp, 4 500', 26–27 Mar. 1968 (S.S.S.S.) No. 231—13 ♂, 22 ♀, Zoutpansberg, 5 mi. N. Louis Trichardt, 8 May, 14 Dec. 1968 (S.S.S.S.)—18 ♂, 4 ♀, 5 mi. N. Louis Trichardt but 5 Aug. 1968 (A. Pienaar)—11 ♂, 18 ♀, same locality but 27 Dec. 1957 (A. L. Capener)—1 ♂, Olifantsnek Dam, 12 Aug. 1969 (A. Pienaar)—2 ♂, 1 ♀, Rustenburg, same date and collector—1 ♂, Zeerust, same date and collector—1 ♂, 10 mi. S.E. Punda Milia, Kruger Park, 5 May 1968 (A. Pienaar)—1 ♂, Barberton, Tegwain Pool, 2 500', 23 Mar. 1968 (T. Schuh) No. 224—1 ♂, 1 ♀, Base Magoebaskloof, 4 000–6 000', 12 Dec. 1967 (S.S.S., J. Munting)—1 ♂, 1 ♀, Pretoria, 28 Dec. 1967 (S.S.S.)—1 ♀, same locality but 5 Mar. 1965 (Swiestra)—2 ♀, Tzaneen Dist., Letaba Valley, 20 Dec. 1958 (A. L. Capener)—3 ♂, 3 ♀, *Cape Province*, Port St. John, Pondoland, April – June 1–11, 1926 (R. E. Turner) (*bellus* paratype)—*Cape Province*, 1 ♂, Cape of Good Hope, (C. Darwin)—6 ♂, 6 ♀, 11 mi. S. of Zuurberg Pass Summit, 1 800', (T. Schuh, M. Sweet) No. 196—1 ♂, S. Outeniqua Pass, Summit S. Oudtshoorn, 7 Feb. 1968 (S.S.S.S.)—1 ♂, 2 mi. S. Goukamma, Knysna, 8 Feb. 1968 (S.S.S.S.)—1 ♂, Tzitzikana Forest [*sic* Knysna Forest], Ysterhoutrug, 8 mi. [*sic* = 18

mi.] N. of Knysna, 21 Dec. 1967 (M. H. Sweet) No. 88—1 ♂, Swartberg Pass, 25 mi. N. Oudtshoorn, 5 200', 19 Nov. 1967 (M. H. Sweet) No. 81—1 ♂, Just N. Ceres, 1 400', 20 Oct. 1967 (M. H. Sweet) No. 42—1 ♂, 1 ♀, Umtata Transkei, Feb., Mar. 18, 1923 (R. E. Turner) (*bellus* paratypes)—1 ♂, "B.M. 1926", No. 39—1 ♂, 3 ♀, same locality but July, 1954 (A. L. Capener)—Natal 2 ♂, 2 ♀, Lake St. Lucia, Charters Creek, 12 Nov. 1967 (S.S.S.)—8 ♀, Eshowe, 16 Nov. 1967 (S.S.S.)—1 ♂, 1 ♀, same locality but May 6–31, 1926 (R. E. Turner) (*bellus* paratype)—1 ♀, 10 mi. S. Paulpietersburg, 7 Nov. 1967 (S.S.S.)—12 ♂, 7 ♀, Pietermaritzburg Burrow Town Bush, 3 100', 15 Apr. 1968 (J. & S. Slater)—4 ♂, 5 ♀, Pietermaritzburg but Umlaas River, 17 Apr. 1968 (S.S.S.)—7 ♂, 14 ♀, Umtentweni, July 1950–1955 (A. L. Capener)—1 ♂, 1 ♀, Umkomaas, March 1961–65 (A. L. Capener)—6 ♂, 7 ♀, Umkomaas but 5 mi. N., 17 Apr. 1968 (Schuh, Sweet) No. 273–4–6—1 ♀, Southbroom, S. Coast, 15 July 1955 (A. L. Capener)—1 ♂, Oliviershoek Pass Summit, 5 400' 25 mi. S. Harrismith, 4 Mar. 1968 (S.S.S.) No. 201—1 ♂, Kloof, 1 500', Sept. 1926 (R. E. Turner) (*bellus* paratype) 1 ♂, 1 ♀, Zululand.

***Sweetocoris paraminutus* spec. nov.**

Head, pronotum except narrow band along posterior margin, scutellum, ventral surfaces of head and thoracic pleura black; clavus and corium and narrow band across posterior pronotal margin testaceous but marked with dark brown along inner angle of corium extending along apical margin to apex; appendages dark brown; wing membranes translucent testaceous.

Vestiture: dorsum covered with sparsely placed elongate, upstanding hairs; ventral surfaces of head and thoracic pleura nearly glabrous with at most a few inconspicuous scattered reduced hairs; abdomen sparsely clothed with short decumbent hairs but these becoming longer on posterior segments; head trichobothria present, unreduced.

Puncture pattern: head, and pronotum punctate except in area of calli; scutellum bearing finer punctures than pronotum; clavus with 8–10 punctures in middle row; ventral surfaces of head and thoracic pleura finely punctate becoming impunctate on meso- and metapleural lateral margins.

Head moderately declivent, convex across vertex, tylus reaching distal portion of antennal segment 1, length head, 0,40, width, 0,64, interocular space, 0,36; pronotum subcarinate laterally, tapering anteriorly, lateral margins sinuate, posterior margin straight, area of calli elevated, smooth, impunctate and shining, transverse impression shallow, length pronotum, 0,72, width, 1,16; length scutellum, 0,60, width, 0,60; corium with lateral margins sinuate; hemelytral membranes exceeding apex of abdomen; distance apex clavus—apex corium, 0,52; distance apex corium—apex abdomen, 0,72; length claval commissure, 0,52; fore femora incrassate, armed below on distal third with a sharp slender spine; abdominal suture between sterna 4 and 5 incomplete, curving, caudad, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area lighter than metapleuron; antennal segment 1 terete, remaining segments absent; length antennal segment 1, 0,28; labium extending between mesocoxae, first segment just reaching posterior margin of head; length labial segments 1, 0,40; 2, 0,40; 3, 0,35; 4, 0,24; total body length, 3,62.

MATERIAL EXAMINED: Holotype: ♂ MADAGASCAR: Est. det. Sambava, R.N. XII-Marojeje, Ambatosoratra, 1700 m. XI–60 (P. Soga). In Paris Museum Institut Scientifique Madagascar).

S. paraminutus is most similar to *S. minutus* in general body coloration, vestiture type, labial ratio and head shape. *S. paraminutus* is a larger, more robust species than *minutus* but otherwise nearly identical. The length of the 200 specimens measured never exceeded 2,50 in *minutus*. *Paraminutus* is 1,02 mm longer than *minutus* and this size difference is too great to consider the two series conspecific. Since *paraminutus* is known only from one female specimen, the paramere (an extremely reliable character to separate closely related species) cannot be used.

***Sweetocoris fenestratus* spec. nov., fig. 5**

Head, anterior pronotal lobe and scutellum shining dark brown to black; clavus, corium and posterior pronotal lobe testaceous becoming chestnut anteriorly on pronotum, distally on corium and exposed abdomen; clavus marked with suffused chestnut spot below scutellar apex mesad middle row claval punctures; ventral surfaces of head and thorax, thoracic pleura and abdominal terga reddish black; wing membrane dull white with a small central transparent oval patch; legs, coxae, posterior pronotal margin, posterior metathoracic margin, tylus and antennal segments 1–3 chestnut with antennal segment 4 darker.

Vestiture: dorsum sparsely clothed with elongate upstanding hairs, exposed portion of abdomen with short decumbent hairs; ventral surface of head and appendages clothed with short hairs; thoracic pleura appearing nearly glabrous with at most a few scattered hairs; abdominal terga with short decumbent hairs becoming longer on posterior segments.

Puncture pattern: head, pronotum and scutellum punctate except area of calli; inner two rows claval punctures numbering less than outer row; a few indistinct punctures scattered on distal third of corium; ventral surface of head and thoracic pleura with finer punctures than dorsum; propleuron and metapleuron finely punctate becoming impunctate on lateral (dorsal) margins.

Head acuminate, non-declivent, convex across vertex, tylus attaining distal half antennal segment 1, ocelli present, length head 0,52, width, 0,72, interocular space, 0,40; pronotum rounded laterally, tapering anteriorly, lateral margins sinuate, posterior margin straight, transverse impression obsolete mesally, area of calli slightly elevated, length pronotum, 0,68, width, 0,88; scutellum slightly convex laterally, length scutellum, 0,60, width, 0,60; corium reduced, postero-lateral margin not attaining antero-lateral portion of abdominal tergum 6; lateral and apical margins slightly sinuate; membranes touching at midline, reduced as opaque flaps with a transparent spot caudo-laterad of claval apex; distance apex clavus – apex corium, 0,28; distance apex corium – apex abdomen, 0,88; length claval commissure, 0,60; abdominal sterna 2–5 fused, suture between sterna 4 and 5 terminating at connexival margin; metathoracic scent gland curved posteriorly to form a hook, evaporative area slightly lighter than metapleuron; fore femora slightly incrassate, armed below on distal third with a sharp slender spine; labium nearly attaining posterior coxae, first segment not reaching posterior margin of head; length labial segments 1, 0,44; 2, 0,40; 3, 0,32; 4, 0,26; antennal segments 1 and 2 terete, 3 and 4 fusiform; length antennal segments 1, 0,36; 2, 0,72; 3, 0,56; 4, 0,60; total body length, 3,68.

Paramere with lateral process slightly rounded, medial process with single hook (fig. 21g).

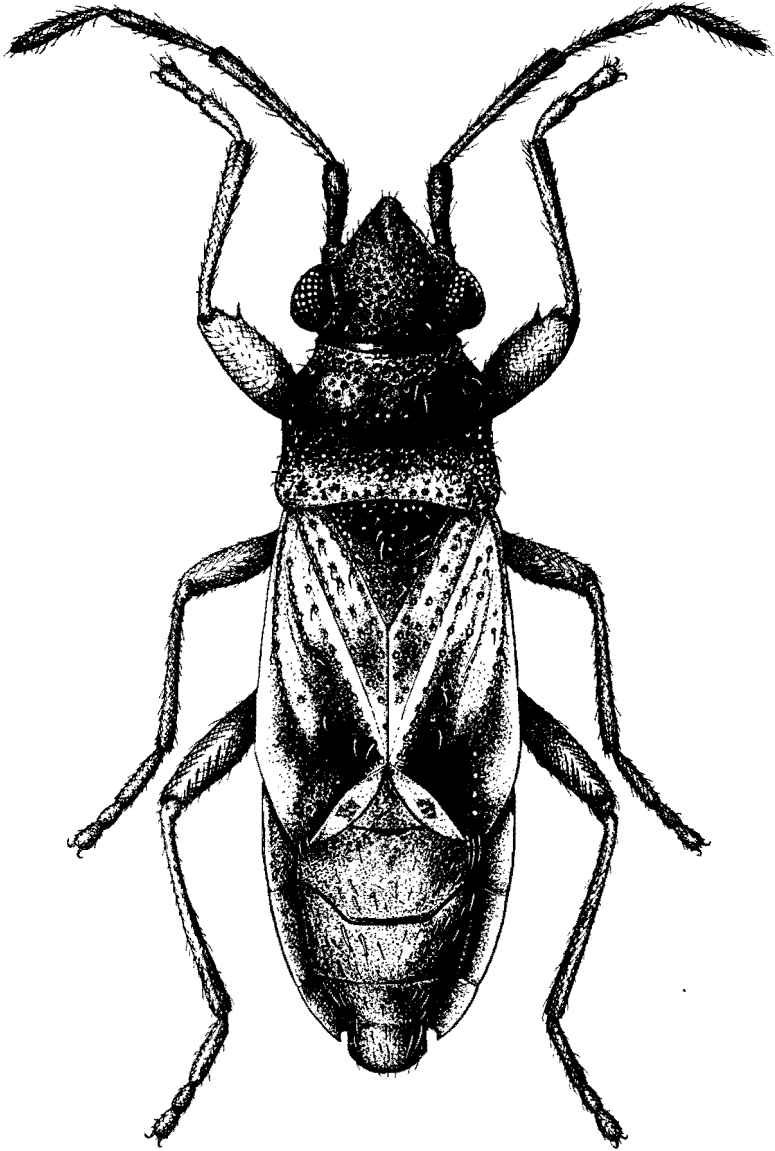


Fig. 5. *Sweetocoris fenestralus* spec. nov., dorsal view.

MATERIAL EXAMINED: Holotype: ♂ SOUTH AFRICA: *Cape Province*, Cape Town, Table Mt., 24 Jan. 1968 (T. Schuh, J. & S. Slater, M. H. Sweet). In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 58 ♂, 73 ♀, same data as holotype — 9 ♂, 12 ♀, Cape Town, Table Mt., W. Table, 3500', 12 Oct. 1967, No. 29 (M. H. Sweet) — 3 ♂, 3 ♀, —Kirstenbosch Gar., 29 Jan. 1968 (S.S.S.S.). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

All specimens of this species are brachypterous with a transparent spot in the otherwise opaque membrane but this spot is only slightly visible in a few specimens. Females are larger than males and tend to be darker. There is some colour variation of the head and pronotum from light reddish tones to nearly black. The number of claval punctures in the inner two rows also varies but is always fewer than the outermost row. Antennal oligomery is present in 2% of the specimens. Segments 2 and 3 appear fused, similar to that of *bonspeiensis* (see discussion under *bonspeiensis*).

S. fenestratus is closely related to *parafenestratus*. Both species share the acuminate head (more pronounced in *fenestratus*), laterally rounded pronotum, and the transparent spots on the wing membranes of the brachypterous forms. *Fenestratus* differs from *parafenestratus* by the larger body size, the reddish to nearly black head, pronotum and scutellum, the reduced corium that never attains the antero-lateral portion of abdominal tergum 6 and the presence of the complete abdominal suture between sterna 4 and 5. *Hirsutus* also has the wing membranes with the transparent spot but has a coleopteroid hemelytra, the clavus and corium are fused, and the abdominal suture between sterna 4 and 5 is incomplete. *Fenestratus* has a number of characters considered ancestral (presence of the complete abdominal suture between sterna 4 and 5, elongate upstanding vestiture, well developed head trichobothria, acuminate head, and long appendages) and probably is of the stock from which *parafenestratus* and *hirsutus* evolved. While the latter two species possess the ancestral vestiture and trichobothria, both species lack the complete abdominal suture between sterna 4 and 5. These two species also possess other derived characters. (See species description for detailed discussion).

***Sweetocoris parafenestratus* spec. nov.**

General coloration bright polished reddish brown becoming lighter on anterior pronotal margin, posterior pronotal lobe and posterior half of scutellum; hemelytra testaceous with a large diffuse macula at inner angle of corium extending along apical margin to apex; membrane dull white with an oval transparent spot distad of claval apex; legs, labium and antennal segments 1, 2, 3, yellow with fourth segment of antenna and labium darker; coxae and trochanters light reddish brown.

Vestiture: dorsum sparsely clothed with elongate upstanding hairs; abdomen with short decumbent hairs; head trichobothria present, not reduced; ventral surface of head sparsely clothed with short hairs; thoracic pleura glabrous; appendages and abdomen clothed with short decumbent hairs.

Puncture pattern: head, pronotum and scutellum bearing coarse punctures becoming impunctate in area of calli; middle row of claval punctures spaced further apart than other species, 6-7 in number; ventral surfaces of head and thoracic pleura bearing coarse punctures.

Head moderately acuminate, non-declivent, slightly convex across vertex, tylus reaching distal half of antennal segment 1, ocelli present, reduced, length head, 0.44, width, 0.56, interocular space, 0.32; pronotum rounded laterally, tapering

anteriorly, lateral margins sinuate, calli slightly elevated, smooth, transverse impression obsolete mesally, length pronotum, 0,48, width, 0,64; scutellum flat, smaller than the other species of the genus, length scutellum, 0,28, width, 0,32; hemelytra with lateral corial margins slightly sinuate, wing membranes just touching at midline, membrane covering antero-lateral margin of abdominal tergum 6, distance apex clavus—apex corium, 0,40, distance apex corium—apex abdomen, 0,56, length claval commissure, 0,39; abdominal sterna 2–5 fused, suture between sterna 4 and 5 incomplete, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area nearly indistinct from metapleuron; fore femora incrassate, armed below on distal third with a sharp slender spine; antennal segments 1 and 2 terete, 3 and 4 slightly fusiform; length antennal segments 1, 0,28; 2, 0,48; 3, 0,40; 4, 0,40; labium attaining anterior metacoxal margin, first segment not reaching posterior margin of head; length labial segments 1, 0,40; 2, 0,32; 3, 0,40; 4, 0,40; total body length, 2,52.

Paramere shape: similar to *fenestratus* but medial process less acutely hooked and shank much shorter and wider (fig. 21h).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*, Gydo Pass Summit, N. of Ceres, 26 Jan. 1968 (S.S.S.S.). In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 3 ♂, 3 ♀, same data as holotype—3 ♂, 3 ♀, 2 mi. N. of Ysterhoutrug Picnic Site, 20 mi. N.E. Knysna, 10 Feb. 1968 (S.S.S.S.) No. 88—1 ♀, Just N. Outeniqua Pass Summit, S. Oudtshoorn, 7 Feb. 1968 (S.S.S.S.)—3 ♂, 3 ♀, Bainskloof Pass Summit, 21 Jan. 1968 (S.S.S.S.) No. 139—3 ♂, 8 ♀, Grootvaterbosch For. Res., 14 mi. N. Heidelberg, 5 Feb. 1968 (S.S.S.S.)—5 ♂, 3 ♀, 2 mi. S. Goukamma, Knysna, 8 Feb. 1968 (J. & S. Slater)—5 ♂, 1 ♀, same data but (S.S.S.S.)—4 ♂, 7 ♀, Capetown, Table Mt., 24 Jan. 1968 (S.S.S.S.)—3 ♂, 3 ♀, 1 mi. N. Swellendam, 500', 15 Nov. 1967 (M. H. Sweet) No. 74—6 ♂, 2 ♀, Tzitzikana Forest [*sic* Knysna Forest], Ysterhoutrug, 18 mi. N. Knysna, 21 Nov. 1967 (M. H. Sweet) No. 88—48 ♂, 30 ♀, Hogsback, N.W. of Beaufort, 16 Feb. 1968 (S.S.S.S.) No. 198—20 ♂, 21 ♀, 1 mi. S. Zuurberg Pass Summit, 1 800', 15 Feb. 1968 (T. Schuh, M. Sweet) No. 196—1 ♀, Just W. of Knysna, 8 Feb. 1968 (S.S.S.S.)—1 ♀, Dutoit's Kloof, East Slope, 2 000', 23 Oct. 1967 (M. H. Sweet) No. 51—5 ♂, 3 ♀, Swartberg Pass, 5 000', 25 mi. N. Oudtshoorn, Platberg, 19 Nov. 1967 (M. H. Sweet) No. 81—15 ♂, 4 ♀, Same data but 10 mi. N., No. 81, 82, 84—1 ♀, Same data but 23 mi. N., 4 200', No. 84—1 ♀, Garci Pass, 1 500', 10 mi. N. of Riversdale, 16 Nov. 1967 (M. H. Sweet) No. 75—1 ♂, 1 ♀, Constantia, Cape Penin., 29 Sept. 1967 (M. H. Sweet) No. 18—3 ♂, 2 ♀, Cape Pt. Nat. Res., 1 mi. N. Cape Pt., 450', 11 Oct. 1967 (M. H. Sweet) No. 74—1 ♀, W. Slope Red Hill, Cape Penin. 900', 4 Dec. 1969 (M. H. Sweet) No. 95—1 ♂, same data but 15 Sept. 1967, No. 2—2 ♂, 10 mi. N. of Ceres, 3 340', (M. H. Sweet) No. 39—2 ♂, Kirstenbosch, Cape Penin. 6 Dec. 1967 (M. H. Sweet) No. 102—2 ♂, 4 ♀, Trudeau's Pass, 800', 10 mi. N. of Swellendam, 15 Nov. 1967 (M. H. Sweet) No. 72. In National Collection of Insects, Pretoria; J. A. Slater and M. H. Sweet collections.

There is much variation in this species. Specimens from the Cape Town area tend to be of relatively large size, coloured in tones of dark reddish brown with fine, shallow punctures dorsally. Those specimens from the Zuurberg and Hogsback area (eastern Cape) are small bodied, coloured in tones of light brown to orange, with coarse,

deep set punctures. The remainder of the specimens from the localities between these two areas are intermediate in these characters. Thus, there is a gradation in characters from relatively large to a smaller body size, dark reddish browns to orange, and from fine shallow punctures to coarse deep-set ones from one end of the range to the other. The parameres, relative length of appendages, head shapes and vestiture types and lengths do not vary in the series.

There are among the series of over 200 specimens only 29 macropters (only 6 from Cape Town). The posterior pronotal lobe is wider, the transverse impression obsolete, and the lateral margin subcarinate in the macropters and the brachypters possess a wing membrane with transparent spots but otherwise the two morphs are the same.

Parafenestratus as previously discussed is closely related to *fenestratus*. The specimens from Cape Town resemble *fenestratus* in body size and coloration more than those from the other localities. However, the brachypters can readily be separated by the length of the corium which covers the antero-lateral portion of abdominal tergum 6 in *parafenestratus* while the corium of *fenestratus* never attains that length.

***Sweetocoris hirsutus* spec. nov., fig. 6**

Head, pronotum, scutellum, ventral and pleural surfaces reddish brown but banded narrowly along anterior pronotal lobe, wider on posterior pronotal margin in orange-brown; tylus lighter than remainder of head; hemelytra testaceous marked with dark chestnut at inner angles, along apical corial margins and apex; legs and labium light reddish brown, tarsi slightly darker; antennae dark reddish brown with segments 3 and 4 nearly black; membrane remnant dull white opaque with transparent patch distad of claval apex.

Vestiture: Dorsum densely covered with elongate upstanding hairs; head trichobothria present; ventral surfaces of head and thorax and thoracic pleura nearly glabrous with at most a few scattered inconspicuous hairs; abdomen clothed with short decumbent hairs but posterior segments with some elongate hairs.

Puncture pattern: Dorsal surface nearly uniformly coarsely punctate, small area of calli and exposed abdominal terga impunctate; ventral surfaces of head and thoracic pleura shallowly punctate.

Head slightly declivent, slightly convex across vertex, tylus reaching distal half of antennal segment 1, ocelli much reduced, length head, 0,40, width, 0,72 interocular space, 0,40; anterior margin of pronotum slightly concave, lateral margin convexly rounded, narrowing slightly to antero-lateral angle, calli flattened, transverse impression obsolete, posterior margin straight, length pronotum, 0,48, width 0,96; scutellum slightly convex, length scutellum, 0,48, width, 0,64; hemelytra with clavus and corium fused (claval suture evident on posterior half in some specimens) corium with lateral margins sinuate, apical margins only slightly sinuate, membrane remnants just touching at midline, covering at most anterior 1/4 of abdominal segment 6; distance apex clavus – apex corium, 0,32, distance apex corium – apex abdomen, 0,80; length claval commissure, 0,68; abdominal sterna 2–5 fused, suture between sterna 4 and 5 incomplete, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook; evaporative area distinctly lighter than metapleuron; posterior lobe of metapleuron smooth impunctate, posterior margin concave; fore femora incrassate, armed with a sharp slender spine below on distal third; labium extending between mesocoxae,

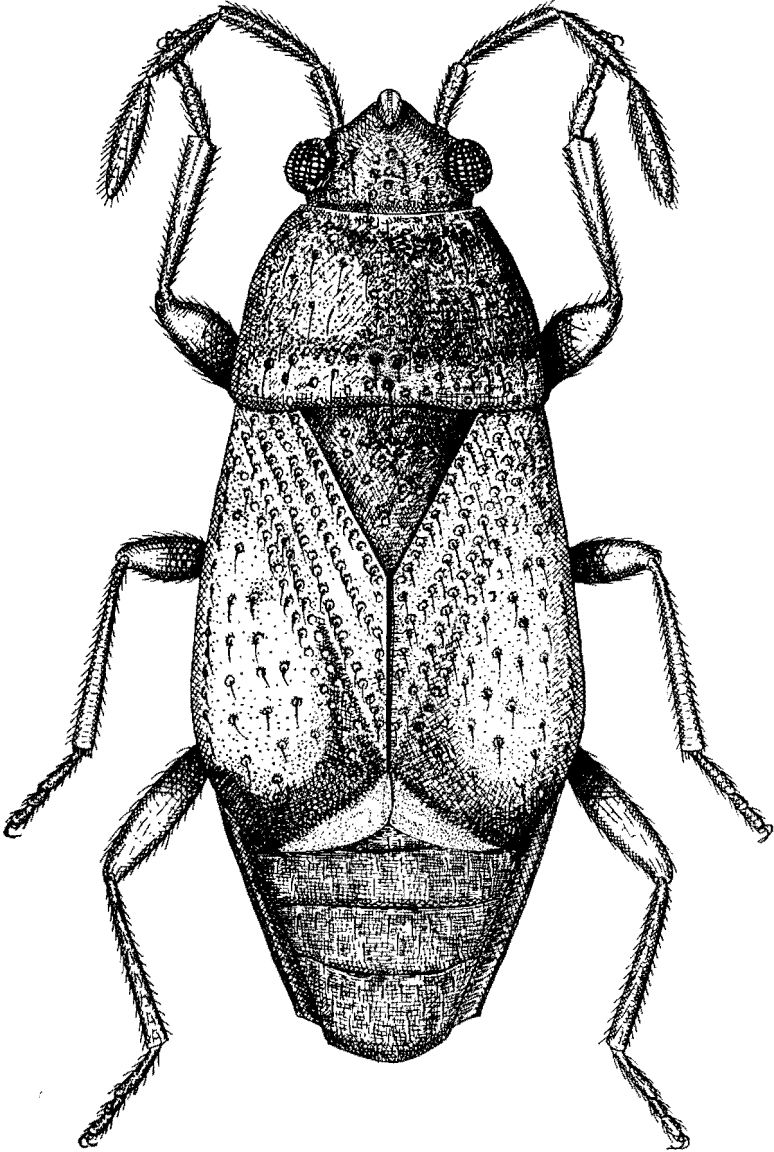


Fig. 6. *Sweetocoris hirsutus* spec. nov., dorsal view.

first segment not attaining posterior margin of head; length labial segments 1, 0,36; 2, 0,36; 3, 0,24; 4, 0,16; antennal segments 1 and 2 terete, 3 and 4 narrowly fusiform; length antennal segments 1, 0,24; 2, 0,40; 3, 0,40; 4, 0,40; total body length, 3,12.

Paramere shape: lateral process rounded, narrowing to elongate blade which curves abruptly on distal end toward midline; medial process projecting posteriorly, acutely produced; shank convexly rounded from medial process to proximal half and narrowing to base (fig. 21i).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*, Cape Pt. Nat. Res., 6,5 mi. N. Cape Point, 7 Dec. 1967, No. 100 (M. H. Sweet). In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 1 ♂, 3 ♀, —Cape Pt. Nat. Res., 4 mi. N. of Cape Point, 3 Dec. 1967, No. 98 (M. H. Sweet). 1 ♂, 2 ♀—28 mi. S.E. Hermanus, Nat. Res. 2 Feb. 1968 (S.S.S.S.). 1 ♀—Cape Point Nat. Res., 7 mi. N. Cape Pt., 450', No. 26 (M. H. Sweet). In National Collection of Insects, Pretoria; J. A. Slater and M. H. Sweet collections.

There is little variation in this short series. Females tend to be large and robust, males small and slender. All specimens are brachypterous.

S. hirsutus is closely related to *fenestratus* and *parafenestratus*. The paramere (fig. 21i) is more specialized than that of either *fenestratus* or *parafenestratus*. The medial process of the latter two (fig. 21g, h) is acutely produced away from the blade and narrows to the shank while this process in *hirsutus* is smaller and acutely produced toward the blade and is convexly rounded before narrowing to the shank. As previously noted, *hirsutus* shares along with the latter two species the wing membranes with the transparent spot. *Hirsutus* has a coleopteroid hemelytra, fused clavus and corium, evenly and entirely punctate corium, reduced ocelli, relatively short appendages, and a declivent head.

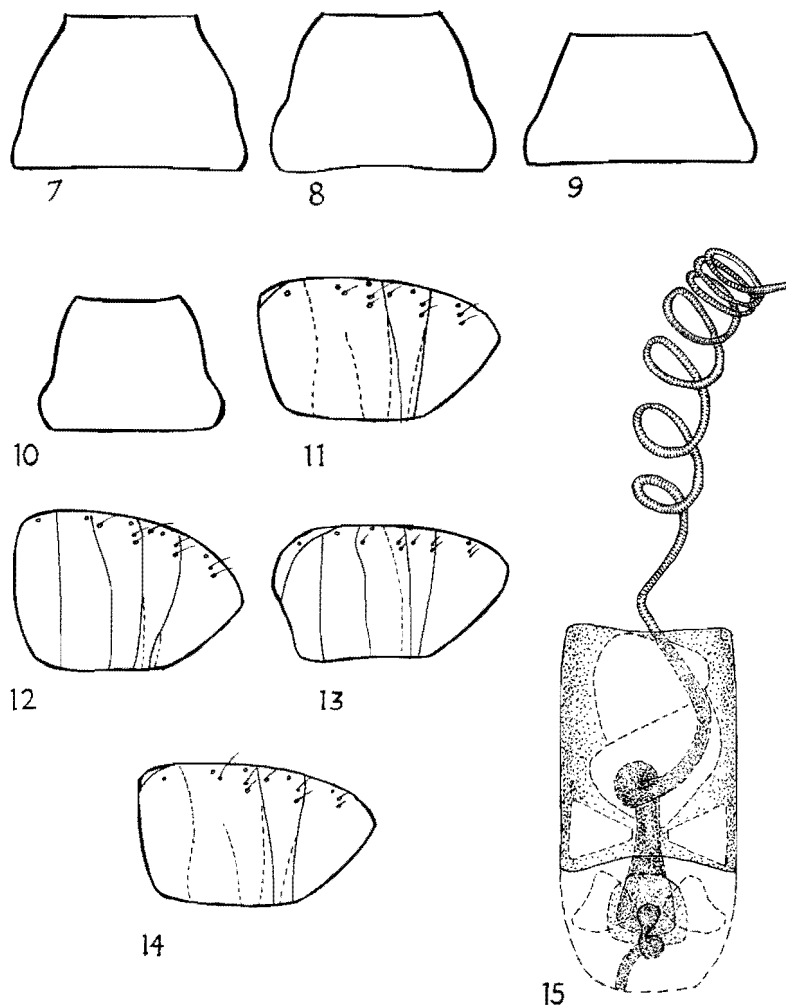
***Sweetocoris thunbergi* spec. nov.**

Head, anterior pronotal lobe, scutellum and dorsal portion of abdomen, ventral and pleural thoracic surfaces chestnut brown; tylus slightly lighter than head; posterior pronotal lobe, clavus and corium dark testaceous but suffusely banded with chestnut along apical corial margins and inner angle, wing membrane translucent; pale yellow; appendages yellow with distal antennal and tarsal segments slightly darker.

Vestiture: dorsum clothed with elongate upstanding hairs but abdomen with short hairs; head trichobothria present, not reduced; ventral surface of head with a few reduced hairs; thoracic pleura glabrous; appendages uniformly covered with short hairs.

Puncture pattern: head, pronotum and scutellum shallowly punctate except for calli; middle row of claval punctures usually spaced far apart, 6–8 in number; distal third of corium with a few scattered punctures; ventral surface of head and thorax finely punctate, these more densely placed on thorax.

Head acuminate, non-declivent, convex across vertex, tylus reaching only to proximal one third of antennal segment 1, ocelli present, length head, 0,32, width, 0,56, interocular space, 0,32; pronotum rounded laterally, tapering, anteriorly lateral margins sinuate, transverse impression obsolete mesally, length pronotum, 0,44, width, 0,72; length scutellum, 0,36, width, 0,40; hemelytra with lateral corial margins slightly sinuate, apical margins nearly straight, wing membranes overlapping at midline covering



Figs 7-15. *Sweetocoris* species. 7-10. Pronotum, dorsal view. 7. *Sweetocoris hirsutus* spec. nov. 8. *S. slateri* spec. nov. 9. *S. parafenestratus* spec. nov. 10. *S. minutus* (Scudder). 11-14. Abdomen, lateral view. 11-12. Complete suture between sterna 4-5. 11. *S. bon-speiensis* spec. nov. 12. *S. fenestratus* spec. nov. 13-14. Incomplete suture between sterna 4-5. 13. *S. pseudoceres* spec. nov. 14. *S. parafenestratus* spec. nov. 15. *S. fenestratus* spec. nov., phallus.

antero-lateral portion of abdominal tergum 6, distance apex clavus – apex corium, 0,40, distance apex corium – apex abdomen, 0,40, length claval commissure, 0,40; abdominal sterna 2–5 fused, suture between abdominal sterna 4 and 5 incomplete, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area distinctly lighter than metapleuron; fore femora incrassate, armed below on distal third with a sharp slender spine; antennal segments 1 and 2 terete, 3 and 4 narrowly fusiform; length antennal segments 1, 0,24; 2, 0,48; 3, 0,40; 4, 0,40; labium extending between mesocoxae, first segment just reaching posterior margin of head; length labial segments, 1, 0,32; 2, 0,36; 3, 0,24; 4, 0,16; total body length 2,68.

Paramere shape (fig. 21j): Lateral process slightly angular, narrowing to slender blade which curves slightly medially; medial process bifidly produced.

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Cape Province*: Dutoits Kloof, 10 mi. W. Worcester, El. 875', 23 Oct. 1967 (M. H. Sweet) No. 49. In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*, 8 ♂, 15 ♀, same data as holotype—1 ♂, Cedarberg Pass Summit, 3 100', 6 Nov. 1967 No. 68 (M. H. Sweet)—2 ♂, 1 ♀, Muizenberg Mt., Cape Peninsula, 925', 9 Dec. 1967, No. 68 (M. H. Sweet)—1 ♂, 1 ♀, same data but 800', No. 105—3 ♀, same data but 500', No. 71, 9–13 Nov. 1967—1 ♀, Bainskloof Pass Summit, 21 Jan. 1968, No. 140 (S.S.S.S.)—1 ♀, Kirstenbosch Gar., Capetown, 29 Jan. 1968 (S.S.S.S.)—9 ♂, 4 ♀, just N. Outeniqua Pass Summit, S. Oudtshoorn, 7 Feb. 1968 (S.S.S.S.)—1 ♀, Camps Bay, Cape Penin., 1–20.X.1920 (R. E. Turner) (*bellus* paratype)—1 ♀, Hout Bay, 13.XII.50 No. 82 (Brinck – Rudebeck). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

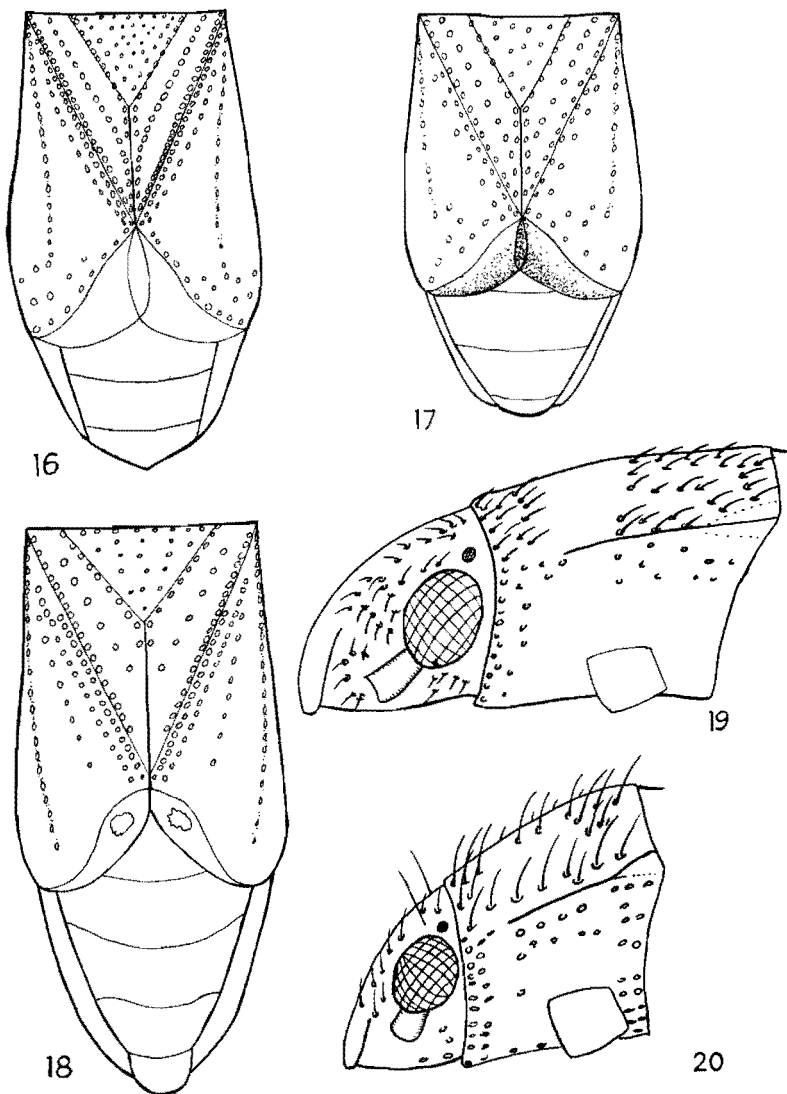
Variation in this series occurs mainly in the depth of coloration, the number and clarity of the claval punctures and the size of males and females with the males being smaller and more elongate.

Thunbergi is most closely related to *slateri*. Both species have a small declivent head, a laterally rounded pronotum, relatively short appendages and clear wing membranes that overlap at the midline. *Thunbergi* is yellow to orange dorsally with pale yellow appendages while *slateri* is nearly black and testaceous dorsally with brown appendages; *thunbergi* has 6–8 claval punctures in the central row while *slateri* has 12–16 punctures in this row; the paramere of *thunbergi* is bifidly hooked on the medial process while this process on *slateri* has one rounded hook curving anteriorly.

Both species occur in the southwest Cape.

***Sweetocoris slateri* spec. nov.**

Head, anterior pronotal lobe and scutellum black; tylus, anterior pronotal margin and posterior pronotal lobe light reddish brown; clavus and corium chiefly testaceous; clavus marked with a small diffuse brown patch distad of scutellar apex, corium with brown along apical margin to inner angle; wing membrane dull white, slightly opaque with a diffuse central light brown area on apical 1/2; ventral surfaces of head and thoracic pleura dark reddish brown to almost black, banded lighter on both posterior and metapleural margins; appendages light reddish brown with antennal segment 4 and distal tarsal segments 2 and 3 dark chocolate brown.



Figs 16-20. *Sweetocoris* species. 16-18. Dorsal view of wing membrane type and puncture pattern. 16. *Sweetocoris slateri* spec. nov. 17. *S. dissimilis* spec. nov. 18. *S. parafenestratus* spec. nov. 19-20. Vestiture types. 19. Decumbent vestiture, *S. drakensbergensis* spec. nov. 20. Upstanding vestiture, *S. fenestratus* spec. nov.

Vestiture: dorsum clothed with elongate upstanding hairs; ventral surfaces of head and thoracic pleura nearly glabrous with at most a few scattered hairs; abdomen clothed with short decumbent hairs with some longer hairs present on posterior segments; appendages generally covered with short hairs.

Puncture pattern: head, posterior pronotal lobe and scutellum relatively finely punctate; calli impunctate; corium with two rows of closely spaced puncture adjacent to claval suture; distal third of corium with scattered punctures; ventral surfaces of head and thoracic pleura finely punctate becoming impunctate along lateral margins.

Head non-declivent, acuminate, convex across vertex, tylus reaching distal third of antennal segment 1, ocelli present, not reduced, length head, 0.40, width, 0.52, interocular space, 0.32; pronotum rounded laterally, tapering anteriorly, lateral margins sinuate, transverse impression shallow, area of calli slightly elevated, posterior margin straight, length pronotum, 0.48, width, 0.80; scutellum elevated at basal margin, tapering downward posteriorly to apex, length scutellum, 0.36, width, 0.48; hemelytra with wing membrane exceeding tip of abdomen; distance apex clavus - apex corium, 0.48, distance apex corium - apex abdomen, 0.40, length claval commissure, 0.32; abdominal suture between sterna 4 and 5 incomplete, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area slightly lighter than metapleuron; fore femora incrassate, armed below on distal third with a sharp slender spine; antennal segments 1 and 2, terete, 3 and 4 slightly fusiform; length antennal segments 1, 0.20; 2, 0.40; 3, 0.32; 4, 0.40; labium extending between mesocoxae, first segment nearly reaching posterior margin of head; length labial segments 1, 0.28; 2, 0.20; 3, 0.20; 4, 0.16; total body length, 2.60.

Paramere shape: paramere with lateral process rounded, medial process curved anteriorly to form a rounded hook (fig. 21k).

MATERIAL EXAMINED: Holotype: ♂ SOUTH AFRICA: *Cape Province*, Kirstenbosch Gardens, Capetown, 29 Jan. 1968 (J. & S. Slater, T. Schuh, M. H. Sweet). In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Cape Province*: 17♂, 18♀, same data as holotype—2♂, 2♀, Table Mt., West Table, 3 500', 7 Dec. 1968, No. 104 (M. H. Sweet)—2♂, 2♀, Cape Pt. Nat. Res., 30 Jan. 1968 (S.S.S.S.)—1♂, 1♀, Cape Pt. Nat. Res., 7 mi. N. of Cape Pt., 450', 11 Oct. 1967, No. 26 (M. H. Sweet)—3♀, Cape Pt. Nat. Res., 6.5 mi. N. of Cape Pt., 7 Dec. 1967, No. 100 (M. H. Sweet) 1♀, Storms River Mouth, 13 Feb. 1968, No. 194 (S.S.S.S.)—3♀, Muizenberg Mt., 500', Cape Prov., 9–13 Nov. 1967, No. 71 (M. H. Sweet)—1♀, Langeberg, Tradouws Pass, 900', 4.1.51 (Brinck-Rudebeck)—1♂, Grootvaterbosch, For. Res., 14 mi. N. Heidelberg, 5 Feb. 1968 (S.S.S.S.) 1♀, 1♂—Cape of Good Hope, (C. Darwin)—1♀, Cape Pt. Diaz Beacon, 700', 3 Dec. 1967 (M. H. Sweet). In National Collection of Insects, Pretoria; South African Museum; J. A. Slater and M. H. Sweet collections.

Specimens in this series vary in colour from reddish brown and orange to nearly black and testaceous and the central row of claval punctures varies in number from 12–16. There are 111 macropters and 84 brachypters in the series. The pronotum of the macropter is subcarinate laterally and the transverse impression is present but shallow while the brachypter has a laterally rounded pronotum and the transverse impression is obsolete mesally. The brachypter has reduced, nearly opaque wing membranes that overlap at the midline. *Slateris* is most closely related to *dissimilis* (see discussion under *dissimilis*).

***Sweetocoris dissimilis* spec. nov.**

Head, anterior pronotal lobe, scutellum, apex and inner angle of corium reddish brown; anterior pronotal collar, posterior lobe, and hemelytra testaceous; wing membrane yellowish orange, slightly opaque; ventral and pleural surfaces reddish brown becoming lighter on posterior metapleural margins; appendages yellowish brown with antennal segment 4, apex of labium and tarsi dark brown.

Vestiture: dorsum clothed with elongate upstanding silky hairs; head trichobothria present, not reduced; ventral surfaces of head and thoracic pleura nearly glabrous, with at most a few scattered inconspicuous hairs; abdomen and appendages clothed with short hairs.

Puncture pattern: head and scutellum bearing medium sized punctures, pronotum with coarser punctures; calli impunctate; distal third of corium with scattered punctures; ventral surfaces of head and thoracic pleura with finer punctures than dorsum.

Head only slightly declivent, slightly convex across vertex, tylus reaching distal third of antennal segment 1, ocelli present, not reduced, length head, 0,32, width, 0,52, interocular space, 0,32; pronotum sinuate, calli elevated, transverse impression shallow; length pronotum, 0,48, width, 0,84; scutellum convex laterally, length scutellum, 0,36, width, 0,40; wing membrane sloping downward, covering apex of abdomen; distance apex clavus – apex corium, 0,36; distance apex corium – apex abdomen, 0,40; length claval commissure, 0,40; abdominal suture between sterna 4 and 5 incomplete, terminating in trichobothrial furrow; metathoracic scent gland auricle curved posteriorly to form a hook, evaporative area indistinct from metapleuron; fore femora incrassate, armed below on distal third with a sharp slender spine; antennal segments 1 and 2 terete, 3 and 4 slightly fusiform; length antennal segments 1, 0,20; 2, 0,40; 3, 0,32; 4, 0,40; labium extending between metacoxae, first segment not reaching posterior margin of head; length labial segments, 1, 0,28; 2, 0,32; 3, 0,24; 4, 0,16; total body length, 2,60.

Paramers shape: similar to *slateri* but blade longer and curved further medially (fig. 211).

MATERIAL EXAMINED. Holotype: ♂ SOUTH AFRICA: *Transvaal*, 14 mi. S. Barberton, 5 200', 24 Mar. 1968, (T. Schuh, J. & S. Slater, M. H. Sweet) No. 224. In National Collection of Insects, Pretoria.

Paratypes: SOUTH AFRICA: *Transvaal*, 22 ♂, 29 ♀, same data as holotype —2 ♂, 8 ♀, 13 mi. S. Barberton, 5 300', 24 Mar. 1968, No. 226 (S.S.S.S.)—1 ♂, 1 ♀, 4 mi. S. Komatipoort, 600', 25–26 Mar. 1968, No. 229 (S.S.S.S.)—2 ♂, Mariepskop, Klaserie, 6 300', 30 Nov. 1967 (S.S.S.)—*Natal*, 11 ♂, 3 ♀, Giants Castle Park, 5 800', 6 Mar. 1968 (S.S.S.S.) 3 ♂, 1 ♀—Same locality, 7 000', 5.3.1968 (J. Munting), *Orange Free State*, 1 ♀, Golden Gate, 12.X.66 (A. L. Capener), RHODESIA: 1 ♀ Umtali Umba, V 1932 (Miss A. Mackie). In National Collection of Insects, Pretoria; South African Museum, J. A. Slater and M. H. Sweet collections.

There are 173 macropters and 95 brachypters in this series. If two forms of wing length occur within a species of rhyparochromine Lygaeidae, the brachypterous form usually outnumbers the macropterous form. This is not the case here, perhaps because of collecting bias, or because at certain times of the year (dispersal periods?) both forms are equally abundant. The specimens from the eastern Transvaal are usually reddish in colour while the specimens from Giants Castle, Natal, are much darker and

the punctures on the clavus coarser and more distinct in appearance. Antennal ratio, labial length, presence of a fore femoral spine, and general shape of the head and pronotum are similar in the specimens from the various localities in both provinces. The parameres of the specimens from the Natal and Transvaal provinces are identical, a further indication that members of the whole series are conspecific. It is interesting that four specimens from Cathedral Peak, Natal, appear identical in colour to the series from the Transvaal; the Giants Castle series may thus be a local colour variation.

S. dissimilis is most closely related to *slateri*. The macropters of the two species are difficult to distinguish. Generally, *slateri* is more polished, more finely punctate and has more than 14 punctures in the middle row of the clavus (a few specimens of *slateri* have 12) whereas *dissimilis* always has less than 14. The parameres of both species have a similar hook-like medial process but *dissimilis* has a longer blade which curves medially at a greater angle on the distal half and the paramere is larger compared to body size than that of *slateri* (fig. 21k, 1). The labium of *dissimilis* extends between the mesocoxae. The brachypters of *dissimilis* have translucent membranes with brown spots and this membrane is not on the same plane as the corium, while the brachypters of *slateri* have nearly opaque, testaceous membranes that are on the same plane as the corium and which overlap at the midline more than does those of *dissimilis*.

Dissimilis shares with *thunbergi* the small declivent head, the laterally rounded pronotum of the brachypters, and the reduced wing membranes that slightly overlap at the midline. *Dissimilis* can be distinguished from *thunbergi* by the darker, reddish coloration, the labium that extends between the metacoxae, the greater number of punctures in the central row of the clavus and the paramere with a medial process that is hooked and curved anteriorly.

***Sweetocoris similis* spec. nov.**

General coloration of dorsum chiefly muted tones of chestnut and orange, darkest on head, anterior pronotal lobe, scutellum, inner angle of corium, apical corial margin and corial apex; ventral and pleural surfaces and appendages generally light brown.

Vestiture: head clothed with short decumbent hairs; remainder of dorsum clothed with sparsely placed elongate, upstanding hairs; ventral surfaces of head and thoracic pleura nearly glabrous with at most a few inconspicuous scattered reduced hairs present; appendages densely covered with short hairs; head trichobothria present, unreduced.

Puncture pattern: head, pronotum and scutellum punctate with punctures on head and scutellum smaller; calli smooth, shining, largely impunctate; clavus with three rows of punctures very close together in all rows; ventral surfaces of head and thoracic pleura more finely punctate than pronotum; becoming impunctate on mesopleural and metapleural lateral margins.

Head non-declivent, acuminate, convex across vertex, tylus extending to distal half antennal segment 1, ocelli present, unreduced, length head, 0.48, width, 0.64, interocular space, 0.40; pronotum subcarinate laterally, tapering anteriorly, lateral margins sinuate, calli elevated, transverse impression evident across disc, length pronotum, 0.72 width, 1.12; scutellum slightly convex laterally, length scutellum, 0.60, width, 0.68; corium with lateral and apical margins sinuate; wing membranes slightly opaque off-white, attaining or exceeding apex of abdomen; distance apex clavus – apex corium,

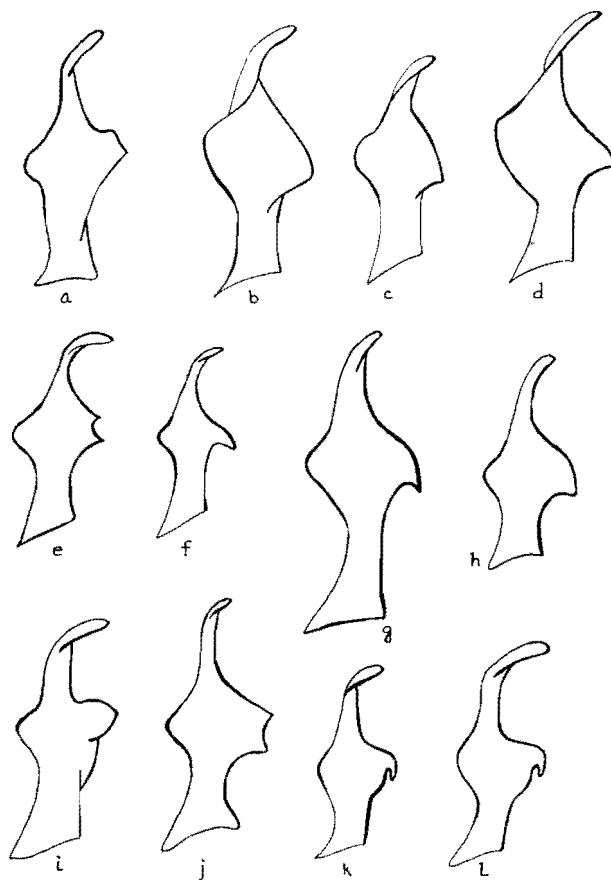


Fig. 21. a-l. Right paramere. a. *Sweetocoris bonspieiensis* spec. nov. b. *S. minutus* (Scudder) c. *S. drakensbergensis* spec. nov. d. *S. ceres* spec. nov. e. *S. minutus* spec. nov. f. *S. pseudoceres* spec. nov. g. *S. fenestratus* spec. nov. h. *S. parafenestratus* spec. nov. i. *S. hirsutus* spec. nov. j. *S. thunbergi* spec. nov. k. *S. slateri* spec. nov. l. *S. dissimilis* spec. nov.

0,60; distance apex corium – apex abdomen, 0,56; length claval commissure, 0,68; fore femora incrassate, armed below on distal third with sharp slender spine; abdominal suture between abdominal sterna 4 and 5 incomplete, curving caudad, terminating in trichobothrial furrow; evaporative area of metathoracic scent gland auricle distinctly lighter than metapleuron; antennal segments 1 and 2 terete, segments 3 and 4 fusiform; length antennal segments 1, 0,32; 2, 0,68; 3, 0,56; 4, 0,52; labium attaining anterior metacoxal margins, first segment not attaining posterior margin of head; length labial segments 1, 0,40; 2, 0,48; 3, 0,32; 4, 0,20; total body length, 3,64.

MATERIAL EXAMINED. Holotype: ♀ MADAGASCAR, – Est – det. Sambava, R.N. XII-Marojeje Ambatosoratra, 1 700 m., XI-60- P. Soga. In Paris Museum (Institut Scientifique Madagascar).

Paratype: MADAGASCAR: 1 ♀ Madagascar – Centre Plateau Soaindrana 2 090 m. Andringitra – Ambalavao, 16.1.58 (R. Paulian). In J. A. Slater collection.

The holotype is macropterous, the paratype brachypterous. The macropter is relatively with a laterally subcarinate pronotum and the paratype is smaller with a laterally rounded pronotum. This pronotal modification is a common phenomenon in the genus and associated with wing polymorphism. Both specimens have the relatively large, porrect, head, a labium that attains the anterior metacoxal margin, and the combination of short decumbent hairs on the head and elongate, upstanding hairs on the remainder of the dorsum.

S. similis resembles *dissimilis* in the reddish coloration, metathoracic scent gland auricle shape and pronotal shape. *Similis* can be distinguished from *dissimilis* by the porrect head, the relatively large body size, the shorter labium, the vestiture type noted previously, the densely placed punctures on the clavus; and the evaporative area of the scent gland which is distinctly lighter than the metapleuron.

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